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WOMEN IN THE CIVIL ENGINEER CORPS

by

CONNIE MADDEN

A report submitted in partial fulfillment

of the requirement for the degree of

Master in Science in Civil Engineering

University of Washington

1986

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This report is dedicated to my young friends and daughters, Christy and Jenna. I want them to learn that life needs adjusting now and then but they can use their tools and try to fix it rather than complaining or calling the plumber!

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ABSTRACT

Information on women working in the construction industry, and more specifically information on women employed in the United States Navy's Civil Engineer Corps is very limited. To obtain information on women employed in a construction-related field, a survey was conducted of all the women CEC officers. Results show that there is an intense interest about the characteristics and concerns of these women officers as evidenced by the enthusiastic response. The results of this study can be used as a tool in developing better policies, and recruiting and retention strategies. More importantly, this report should help to increase the awareness to the issues important to women in the Civil Engineer Corps as well as women in the construction industry.

INTRODUCTION

Recently popular books and articles on management such as: *In Search for Excellence* (Peters, 1982), the *One Minute Manager* (Blanchard, 1982), and *Reviving the Corporation* (Naisbitt, 1985); all carry a central theme - people are the most important resource. Since people are the most important resource, studying their characteristics, soliciting their opinions and listening to their ideas can only strengthen any organization. Studies conducted in many different industries have shown that when management becomes more people oriented the employees become more satisfied and productive (Peters, 1982). Some major construction firms have implemented successful programs to improve productivity, safety, and quality control centered around the theme that people are the most important resource. Two examples are: The Monsanto Company's program of "Teamwork and Optimum Performance Skills (TOPS)" (Hendrickson, 1981) and the Morrison-Knudsen Company's program of the "Powerful Producer Productivity Improvement Program" (Knack, 1981), programs that stress the use of their employees' creativity and experience to solve problems.

Women have been recently recognized as an important resource in the labor force. Because the Civil Rights Act of 1964 made it illegal to discriminate against all individuals including women, many women have chosen careers in fields which are traditionally male-dominated. Two such fields are the United States Navy and the construction industry. The construction branch of the Navy,

the Civil Engineer Corps (CEC), has recruited over 85 women engineers and architects to become CEC officers (Moore, 1986). Currently these women constitute 5.4 percent of the total number of CEC officers (Moore, 1986). In fiscal year 1988, women officers are projected to comprise approximately 12% of all CEC officers (Moore, 1986).

Recognizing that people are the most important resource and that women represent an increasing resource for the CEC, the objective of this report is to provide information on the characteristics, opinions, and ideas of the women in the CEC. This information can be used to attract and retain women CEC officers as well as women in the civilian construction industry. Furthermore, due to the growing scarcity of labor resources and the increasing costs associated with losing well-trained, experienced people, it is important to recognize, respond to, and correct the problems experienced by women in construction so they may enjoy long and successful careers in the construction industry.

LITERATURE REVIEW

Only a limited amount of information was found on the topics of women in the Civil Engineer Corps (CEC) and women in construction. The reason for such a lack of information can be explained by the fact that only recently have a significant number of women entered the field of construction. A literature review using more general subjects such as women in the military and working women resulted in finding additional sources of information.

This chapter is divided into three sections. The first section will discuss the history of women in the military which will help the reader gain a better insight into the changing role of women in the military. The second section discusses some current polices affecting women in the military. And the third section discusses some recently published theories and studies that could apply to women in the CEC.

History

The role of women in the Civil Engineer Corps (CEC) or more generally the military, has slowly changed since the birth of the nation. The history of this changing role can only be traced by considering the military organization on the whole since situations within individual branches of the military influence the policy making of the other branches. The military organization, like any other subset of society, reflects and reacts to the popular opinions of the era. This fact plays an

important role in the policies which have and will affect women in the military. Since Congress passes laws that become military policies, the laws, as well as the policies, tend to be conservative in nature and difficult to change. Changes to roles of women in the military have therefore been slow and will likely continue to be so in the future. The most in depth reference found for the history of women in the military is a book by Major General Jeanne Holm, USAF (Ret.) entitled *Women in the Military - An Unfinished Revolution* (Holm, 1982). The factual information presented in the following paragraphs about women in the military is derived mainly from her book. When other references were used, they are noted.

Prior to the Civil War, or more specifically, the year of 1861, no policies existed which governed the roles of women in the military. This fact did not prevent women from participating. Historical accounts of women fighting in the Revolutionary War and the War of 1812 exist but are sketchy. Molly Pitcher, who fired a cannon and Deborah Samson, who masqueraded as a man for three years, are just two examples of women who fought in the Revolutionary War. In the war of 1812, Lucy Brewer, acknowledged by the Marine Corps as the "first girl marine", served for three years on the *USS Constitution* disguised as a man.

The Civil War brought about an increased participation of women in the military and an officially recognized role. In the Civil War, women performed traditional duties such as cooking, sewing, and foraging for supplies, but they also served as

"saboteurs, scouts, couriers, and military strategists." Women contributed most significantly in the area of health care. The United States Secretary of War established a position entitled "Superintendent of Women Nurses" and appointed Dorothea Dix as the first to fill the post. The establishment of this position constituted the first policy effecting women in the military.

As the Civil War progressed, women became more and more active, developing into an influencing force that the military establishment had to address. Clara Barton established the first National Cemetery at Arlington, Virginia and the American Red Cross. In 1864, Dr. Mary Walker gave up her medical practice as a doctor to accept the only available position for women in the Army, a nurse. She later became the first woman who was commissioned as an officer in the Army which allowed her to resume her practice as a doctor. Under pressure from the Women's Central Association of Relief, the Union Army established the Sanitary Commission. This commission became one of the channels women used to organize patient care, obtain hospital supplies and enforce sanitary standards.

Because of the exceptional performance of women in both the Civil War and the Spanish-American War, Congress finally recognized the need for a permanent resource of women nurses during wartime and passed legislation to establish a formal organization. When the Civil War ended in 1865, the Army disbanded all the women's organizations and reverted back to the use of only enlisted men for patient care. The Spanish American War brought about another critical need for nurses but Congress

only authorized the Army to appoint women under civilian contract, not with military status. In 1901, Congress realized there was a need for a permanent nursing capability within the military structure and established the Nurse Corps as an Auxiliary of the Army. The nurses had no military rank, no retirement or veterans benefits, and the pay was less than that of the men who held the same positions. The Navy established a Nurse Corps identical to the Army on May 12,1908.

World War I provided the opportunity for women to expand their roles in the Navy and Marine Corps, but this did not occur the Army. As the threat of war in Europe grew, the Secretary of the Navy enrolled women in the Naval Reserve as yeomen. When war was declared on April 6,1917 the Navy enlisted these women into the Regular Navy. At that time yeomen were required to be assigned to ships but Navy regulations forbid women from going to sea on navy ships. To circumvent the regulations, the Navy assigned the women to tugs resting on the bottom of the Potomac River. Personnel shortages caused by men deploying with combat units forced the Marines to also enlist women. Women in the Navy and Marine Corps were soon moved into jobs such as radio electricians, draftsmen, translators, camouflage designers, and recruiters. However, the War Department refused to allow the Army to enlist women even after receiving specific requests from field commanders. The Secretary of the Navy and the Secretary of War held opposite points of view about women's roles in the

military. Consequently, their differing interpretations of the regulations allowed women to be enlisted in the Navy but not in the Army.

After World War I ended, the role of women in the military became limited to a traditional women's role - nursing, even though the fight for more rights for women had escalated. When the Armistice was signed on November 11, 1918, the demobilization of the women immediately began and only the Nurse Corps survived the transition to peace. At the same time, the women's suffragist movement had gained considerable momentum so it seems ironic that women did not remain more active in the military. The war for voting rights of women was being fought from the reformist's front which conformed to the politics of the period (Chafe, 1972). The suffragettes fought under the banner that women should be active in social issues because these issues affect their families. This banner is consistent with the societal view of the traditional family role of women being that of wife and mother, not of that of soldier or sailor. Coupled with the societal view of the military being part of a man's role and the nation being tired of war, the demobilization of women naturally began.

The progress made by increasing the roles women held in the military during World War I virtually halted and even started to go backwards when legislation was passed to limit the role of women to nursing. In the 1920's, from fear of women pacifist and anti-military movements, the War Department launched a public relations effort by establishing the Director of Women's

Programs, United States Army. The duties of the position involved liaison work between the Army and women's groups such as American War Mothers, Daughters of the American Revolution, and the League of Women Voters. Anita Phipps, who became the first director envisioned different duties other than just liaison work. She developed a plan to establish a Women's Service Corps, giving women full military status and tried to have "women appointed as civilian aides to the Secretary of War." Her plans for the service corps was turned down along with two other plans developed by men. In 1925, Congress passed an amendment to the Naval Reserve Act of 1916. The word "citizen" was changed to "male citizens" so the Navy could not enlist women without Congressional action and consequently, this act limited women to serve as only nurses.

In 1941, the pressure of World War II prompted bills to be introduced establishing legislation which would allow women to serve in the military in positions other than nursing. On May 15, 1942, Public Law 77-554 passed establishing the Women's Army Auxiliary Corps (WAAC). The auxiliary status allowed women to serve in the Army in roles other than nursing but failed to include equality of pay, entitlements or military rank with men. On July 30,1942, another law (PL 77-689) was passed which established the Navy's Women Reserve. This law, unlike the law that established the WAAC, gave women full military status. The issue of allowing women to carry full military status in the Navy prompted a widespread debate over equal status for men and women within the military. Only with the help of Eleanor Roosevelt did

the Navy bill get the necessary support it needed to pass. In June of 1943, another bill was passed that established a Women's Army Corps (WAC) which gave full military status to women. This bill was passed to eliminate the inconsistency between the military status of women serving in the Navy and the Army. The WAAC was disestablished and women serving in that organization were given the choice to convert to the WAC or to resign. The majority of the women chose to convert to the WAC.

As a result of the Navy's Women Reserve Law, many different occupations opened to women for the first time including the Navy's Civil Engineer Corps. The first women entered the Civil Engineer Corps on November 28, 1943. An excerpt from the *Washington Post* dated August 27, 1943 states:

> The Civil Engineer Corps of the Navy, composed since 1897 of highly trained engineers who must meet strict technical eligibility requirements, has accepted its first woman officer as a full-fledged member of this branch of the Naval Service. She is Ensign Kathleen F. Lux. Ensign Lux, whose home is Logansport Ind., holds a civil engineering degree from Purdue University, where she graduated in 1942. Her special field is sanitary engineering. On duty now in the Bureau of Yards and Docks, Ensign Lux is an assistant in the office of CDR. C. P. Conrad, Civil Engineer Corps, USNR, director of the construction department... Her present duties are principally concerned with keeping track of materials and supplies. "But what I really like," she says, "would be

> to get out in the field doing sanitary engineering work."... "Even out on island X?" she was asked. "Of course on island X. But they'll never let me go."... [she] enjoys working with men, but confesses that "just one other girl" in the office would be rather nice.

Ensign Lux was promoted to Lieutenant before being separated from the service at the end of World War II. A second women, LCDR Gertrude Sawyer of Tuscola, Illinois entered the Civil Engineer Corps in 1944 and remained in the reserves after the war (Chance, 1973).

The women in the military during this period of history were subjected to many forms of discrimination and harassment. "Dirty jokes, snide remarks, obscenities, and cartoons became commonplace. It was a humiliating and demoralizing experience for the thousands of women who had responded to what they perceived as their patriotic duty." The enemy was accused of implementing a propaganda campaign using harassment to demoralize the women in the military in an effort to demoralize the entire American military establishment. The FBI investigated the situation and found that American servicemen, not the enemy, were the only source of harassment facing the women. The FBI study found that the servicemen's motives were to "degrade military women and to drive them out of the man's world since women threatened their egos." Military women were caught up in a series of tightened and inconsistent rules governing their behavior as a result of continued slander by men. Women were not allowed to fraternize with men and when they were caught doing so

"it was she who was disciplined, rarely the man." Women who were found to be pregnant or to have had an abortion were immediately discharged. Furthermore, women could be discharged for merely exhibiting "undesirable habits and traits of character."

When World War II ended there was no legislation allowing women to continue serving in the military during peacetime so the assessment of the need for women in the military began. Hitler's weapons production chief, Albert Speer, assessed America's military women in a highly positive light. Addressing the U. S. policy he stated: "How wise you were to bring your women into your military and into your labor force. Had we done that initially, as you did, it could have affected the whole course of the war. We would have found out, as you did, that women were equally effective, and for some skills superior to males." The United States government also recognized the usefulness of women to the armed services but only after some controversial debates over the prospect of possible early retirement on physical disability because of "menopause symptoms" and over "vicious comments made by anonymous Navy men" during closed door sessions of the Armed Services Committee. But on June 2, 1948 the Women's Armed Services Act of 1948 became Public Law 80-625 which gave women a permanent place in the military. The act was commonly called the Integration Act, yet it did not fully nor equally integrate women into the military.

Although the Act was sexist in nature by today's standards, it reflected society's viewpoint of the time. The Act limited the total number of women on regular duty to two percent

of the total military manpower, allowed each service to have only one woman Captain/Colonel (no Admirals or Generals), and limited the number of women Commanders/Lt. Colonels on permanent regular duty to ten percent of the total officers holding that rank. The Act also required the separation of men's and women's promotion lists, limited the minimum enlistment age for women to eighteen with parental consent required until age twenty one (men's minimum age was seventeen with parental consent required only until age eighteen), required women to prove that all dependents that they claimed were fully dependent on the woman for support and forbid women to serve on navy ships except hospital ships or transports. Furthermore, the Act authorized the service Secretaries to terminate the commission of any female members under certain circumstances while the men were not subject to this termination power of the Secretaries. Surprisingly, the Navy opposed the wording of the legislation that prevented women from serving on ships. Even though senior Navy policy-makers had no intention of assigning women to ships, they felt the wording in the Act was not necessary. The Armed Services Committee insisted on addressing the issue within the Act so that the question would not be left to Secretarial discretion.

From the passage of the Integration Act, through intense publicity campaigns mounted during the Korean War, and into the early 1960's, American women showed little interest in military careers. The Secretary of Defense formed a committee entitled Defense Advisory Committee on Women in the Services (DACOWITS). This committee, made up of fifty prominent women, was assigned

the task of reassuring parents of the merits of women serving in the military, conveying information about career opportunities for military women, and raising the prestige of military women in an effort to encourage women to join the military. The campaign did not work as hoped. Many theories exist attempting to explain the disinterest of women to join the military and one of the most convincing is Barbara Friedan's theory referred to as "The Feminine Mystique". Ms. Friedan's theory suggests that a national conspiracy existed to allow women into only one "occupation: Housewife" (Friedan, 1963). During the time when women showed little interest in serving in the military, Congressional bills were introduced to disband the women military groups, especially the Women's Air Force, but these bills did not pass. In 1966, Jack Anderson, in a *Washington Post* article, describes military women as "typewriter soldiers...more attention is paid to the rise and fall of hemlines than to the ebb and flow of battle lines." This article helped to direct the feminist movement to the military.

Even though most women showed little interest in a military career, the women who did join the military faced serious discrimination in the 1950's, but in the 1960's, they started to fight back. President Truman signed Executive Order 10240 on 27 April 1951 that terminated, regardless of rank, grade, or length of service, the commission or enlistment of any woman if she:

a. Is the parent, by birth or adoption, of a child under age eighteen.

b. Has personal custody of a child under such minimum

age.

c. Is the stepparent of a child under such minimum age and the child is within the household of the woman for a period of more than thirty days a year.

d. Is pregnant, or

e. Has, while serving...given birth to a living child.

This executive order adequately reflected the public opinion in the 1950's and the early 1960's that a woman's place is at home with her children. When the Civil Rights Act passed in 1964, many lawsuits started to be filed against the military that would allow a woman to enter or remain on active duty when she was pregnant or when she was a mother. The services fought these lawsuits rather than change policy until a 1976 Supreme Court Decision forced the military to drop its policy of involuntary separation of women with children. That decision addressed the 1964 policy that discriminated against women. As a result of that decision, women could no longer leave the service solely because they were married if they had not fulfilled their obligated service. Another Supreme Court decision in 1973 declared that it was unconstitutional to require a female member of the armed forces to prove dependency while men were not required to do so.

In the 1970's, forced by the Supreme Court decisions, many laws were passed to stop discrimination against women and to encourage women to choose the military as a career. Support for legislative action came from three sources: the military need for manpower in Vietnam, the huge groundswell of public opinion from the feminist movement, and the lobby efforts of the DACOWITS.

President Johnson signed Public Law 90-130 to remove restrictions on the careers of female officers, restrictions that affected promotion opportunities and the number of women allowed in the military. The limitations to the number of women officers in the Navy above the grade lieutenant under the old Integration Act forced the discharges of most female naval officers as they reached their thirteenth year, allowing them no retirement benefits. The new law stopped the forced discharges and increased promotion opportunities for women. The passage of the Equal Rights Amendment in 1972 brought the awareness of discrimination of women in the military into focus. A Congressional Special Subcommittee examining the role of military women reported:

> We are concerned that the Department of Defense and each of the military services are guilty of "tokenism" in the recruitment and utilization of women in the Armed Forces. We are convinced that in the atmosphere of a zero draft environment or an all-volunteer military force, women could and should play a more important role. We strongly urge the Secretary of Defense and the service secretaries to develop a program which will permit women to take their rightful place in serving in our Armed Forces.

The Subcommittee report prompted the Navy to open up more occupations for women including, the Civil Engineer Corps. Following the report of the Subcommittee, the Navy published on August 7, 1972, a new policy regarding women, Z-Gram 116,

entitled, "Equal Rights and Opportunities for Women in the Navy." After this policy change, women once again entered the Civil Engineer Corps. In 1973, the first woman entered, five women had entered by 1975, seven by 1977, and 12 by 1979 (Grymarade, 1982). Out of the first 12 that were on active duty in the Civil Engineer Corps in 1979, six remain in the service today (Moore, 1986). The Z-gram also opened up the Navy Reserve Office Training Corps (NROTC) to women, which became a viable source of officers for the CEC. In 1975, Public Law 94-106 opened the service academies for women. Two of the first women to graduate from the Naval Academy entered the CEC in 1980. The CEC also started to accept officers transferring from the other Navy communities in 1980. The increase of women graduates from the Naval Academy and the success of the Collegiate recruiting program have raised the number of women listed on the CEC roster to 89 as of May 1986 (Moore, 1986).

Current Policies

The huge influx of women into the Navy caused some growing pains for the Navy's policy-makers. Many policies affecting women CEC officers have been revised numerous times and further review continues today. Background information on five policies affecting women CEC officers will be discussed in this section. These policies relate to pregnancy, child care, sexual harassment/discrimination, married couples, and restrictions on job assignments.

PREGNANCY POLICY:

The Navy's pregnancy policy has undergone many revisions since 1976. Prior to 1976, pregnant women were required to leave the Navy. In 1976 the Navy incorporated a new policy that allowed a woman to choose between staying on active duty or leaving the Navy if she found she was pregnant. In 1978, maternity uniforms were finally provided so pregnant officers would not need to wear civilian clothes. In 1982, the pregnancy policy was again revised. The revised policy required any pregnant woman who had accrued obligated service (obligated service is a minimum amount of time that a person is required to serve usually in exchange for formal training provided by the Navy) to remain on active duty until the obligated service is completed. However, pregnant women who had obligated service commitments could still apply to leave the service through a hardship discharge. In 1980, women started to serve on ships, but if a woman on a ship became pregnant, she was immediately ordered to a job on shore. In 1986, the pregnancy policy was again revised to allow pregnant servicewomen to remain as members of a ship's crew up to the 20th week of gestation provided she may safely do so and she is left ashore when the ship goes to sea.

The current pregnancy policy that affects women in the CEC is briefly summarized:

Navy servicewomen are responsible for seeking confirmation of pregnancy at a medical treatment facility. After pregnancy is confirmed, a servicewoman is expected to

retain a high degree of commitment to concurrently fulfill professional responsibilities. Navy policy provides that a pregnant servicewoman be retained unless she requests separation on the basis of pregnancy or childbirth. Few requests are disapproved; approximately 1,100 discharges occur annually due to pregnancy. In a normal pregnancy, a servicewoman may continue to perform military duties provided there are no restrictions due to medical her condition or questionable/harmful effects because of the physical configuration of her workplace or job requirements. Only those servicewomen experiencing unusual and complicated problems are excused from all duties and are hospitalized. For overseas assignments, pregnant women may not be transferred in advanced stages of pregnancy (7-9th month) or to areas where there are inadequate medical or housing facilities (military or civilian). After the baby is born, the servicewoman is limited to a maximum of 30 days medical leave following an uncomplicated vaginal delivery or Cesarean section (DACOWITS, 1986).

The Navy's pregnancy policy is quite similar to pregnancy policies of private industry. A recent article by *Money Magazine* listed the Navy's maternity benefit program as one of the ten best of the major employers in the United States (*Money*, 1985). However, one shortcoming of the Navy's policy is that it lacks flexibility. One woman, a former CEC officer (Anonymous, 1986), stated that she had left because she wanted to take a six month leave of absence

(unpaid) after her baby was born but the Navy would not accommodate her request. Managing a pregnancy program tailored for each individual, yet equitable to all, would be quite difficult in an organization as large as the Navy. However, the current trend in private industry is to provide flexible programs for pregnant women whose performances warrant their retention (Naisbitt, 1985) and if these programs succeed, the Navy will need to revise its program to remain competitive for the labor resource of women.

CHILD CARE:

The problem of adequate child care for the children of working mothers is not only an issue for women in the CEC but is an issue that has gained national attention. A recent hearing before the Joint Economic Committee, Ninety-Eighth Congress on the "Problems of Working Women" classified child care as the "largest obstacle" to women attempting to succeed in the work force. From 1981 to 1985, federal and state governments have reduced financial support for child care and consequently, fewer child care centers are opening. However, the need for more centers has increased because of the increase of both the population of new babies and the number of working women (Joint Economic Committee, 1984).

The policy of the Department of Defense regarding child care is that military parents should pay most of the operating costs of child care services. Following the guidance from the Department of Defense, the Navy sponsors two child care programs. The first program is a referral service usually

operated by family service organizations located on naval bases. This referral service provides the names and addresses of people who operate child care centers in the surrounding areas of the base.

The second program is the sponsorship of child care centers that are located on many major military bases and are usually operated by the morale, welfare and recreation department as a self-supporting operation. Appropriated funds (tax dollars) help reduce the total cost of these child care facilities. These funds pay the cost of the director's salary, utilities, maintenance, some supplies, and equipment. They also help reduce the child care costs for the parents. Since the centers are required to be self-supporting, they are not open 24 hours a day. Servicewomen who are mothers and must stand overnight duty, must make other arrangements for child care. To meet medical requirements, the child care centers do not accept children who are sick; consequently, one of the parents usually must take leave from work to stay home with a sick child. Also, most centers do not take infants under six weeks of age, yet the Navy's pregnancy policy limits the amount of convalescent leave for new mothers in the military to four weeks. The Navy's programs for child care are so limited that most women in the Navy with children must find another source of child care. Further discussion on child care can be found in the chapter entitled Results.

On the whole, the child care programs provided by private industry are not much better, although there appears to be an trend of improvement. Most companies do not have any provisions

for child care but some exceptions exist. Some companies such as the First National Bank of Atlanta operate child care centers located on their company sites (Joint Economic Committee, 1983). Other companies provide child care centers but operate them for profit. The Zayre Corporation and the General Accident Insurance Co. operate very successful information and referral services in locating child care services (Joint Economic Committee, 1983). Businesses are beginning to recognize that child care benefits can be necessary and, in addition, is not particularly expensive to provide. Private industries are also being encouraged by local governments to provide child care services for their employees. The city of San Francisco has recently passed an ordinance requiring new commercial buildings to have a specified amount of space dedicated to child care services.

The national problem of adequate child care service will not be solved by the Navy, but an increased awareness of the problem may provide opportunities to improve Navy policies affecting child care services. The results of a research study has shown that productivity increases when employees' children have satisfactory care (Joint Economic Committee, 1983). Therefore, improvements to child care services provided by the Navy can lead to possible productivity increases, which would make the Navy a more attractive employer for mothers or women expecting to be mothers.

MARRIED MILITARY COUPLES:

A summation of the Navy policy affecting assignment of military couples follows: "Married couples in the Navy will be assigned together whenever possible, but a joint assignment is not always guaranteed" (DACOWITS, 1986). Further discussion about the married couples policy can be found in the chapter entitled Results.

JOB RESTRICTIONS:

The formal policy on the utilization of women in the Department of Defense is "Women will be provided full and equal opportunity with men, within statutory and related policy limitations" (DACOWITS, 1986). The current law restricting the assignment of women in the Navy was enacted in 1948 when the women's components were made part of the permanent military structure. The applicable law is found in Title 10, U. S. Code Section 6015: "... The Secretary [of the Navy] may prescribe the kind of military duty to which such women members may be assigned and the military authority which they may exercise. However, women may not be assigned to duty on vessels or in aircraft that are engaged in combat missions nor may they be assigned to other than temporary duty on vessels of the Navy except hospital ships, transports, and vessels of a similar classification not expected to be assigned to combat missions" (DACOWITS, 1986).

The Navy has classified approximately 200 billets in the CEC as billets where women CEC officers cannot be assigned. These billets are billets within the Construction Battalions (Seabees). The reasoning follows:

> "Naval Mobile Construction Battalions are mobile, combat trained and equipped units of the Naval operation forces which must be ready for immediate deployment into hostile areas in support of the Marine Amphibious Force or other combat assignments. Women are assigned to ships or squadrons that are not expected to have a combat mission during the period of assignment. The same law precludes the permanent assignment of women to combatants. Naval Mobile Construction Battalions are the same as combatants since at all times they must be ready to immediately deploy to a combat zone. Each person in the battalion is key to the combat mission and if women members of the unit were precluded by law from deploying to the combat zone it would be inconsistent with their required readiness posture" (Hughes, 1984).

The U.S. Code does not specifically exclude women CEC officers from assignment to Naval Mobile Construction Battalions but the Secretary of the Navy does have the authority to "prescribe the kind of military duty to which women members may be assigned" (Title 10, U.S. Code 6015) and he has exercised this authority when establishing the policy that excludes women from assignments to the Seabees. The Secretary of the Navy will

usually seek the counsel and recommendations from the senior military officers before making such a decision. These senior officers apparently do not recommend assigning women to Seabee billets. At one point in time, there was a question on what the policy would be regarding women assignments to Mobile Construction Battalions. In 1979, a plan was developed by the CEC to integrate women into the Mobile Construction Battalions since "the broadening of assignment policy makes the restriction on assignments of females to the Navy Construction Forces questionable" (Appendix E). The policy to exclude women from Mobile Construction Battalions was made and the integration plan was shelved.

Two women officers will report to billets within the two Amphibious Construction Battalions (PHIBCB) during the summer of 1986. The reasoning for the assignment of women to PHIBCBs is that women line officers have been assigned to the Amphibious Construction Battalions therefore women CEC officers may also be assigned (Moore,1986). There does not appear to be a plan to assign women CEC officers to Mobile Construction Battalions in the near future. It is interesting to note that the Army has just assigned a woman officer to be a company commander in an Army Construction Battalion (Myers, 1986) and the Marine Corps assigns women to Marine Engineer Units that are deployed (Appendix E). It is probable that the restrictions of women to Seabee billets will also be changed in the future.

SEXUAL HARASSMENT/DISCRIMINATION:

Title VII of the Civil Rights Act specifically prohibits discrimination in the hiring and firing of individuals or in any other "terms and conditions of employment based on race, color, religion, national origin, or sex" (Carey, 1982). The Equal Employment Opportunity Act of 1972 amended Title VII to place Federal government employees under its coverage. In recent years Federal courts have found that sexual harassment directed at an employee by a supervisor constitutes a form of sex discrimination.

Within the Department of the Navy, there are two basic personnel structures, each with its own legal and regulatory base governing working conditions. Military conduct is regulated by the Uniform Code of Military Justice and guidelines set forth in Navy policy. Conduct of civilian government employees is administratively regulated by the Equal Employment Opportunity Commission (EEOC). Women CEC officers work with all types of people: Navy military personnel, federal government employees, and the public, are covered by the Civil Rights Act in one way or another.

The Navy defines sexual harassment as: "Sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature, constitute sexual harassment when: (1) submission to such conduct is made either explicitly or implicitly a term or condition of a person's job, pay, or career; (2) submission to or rejection of such conduct by a person is

used as a basis for career or employment decisions affecting this person; or (3) such conduct has the purpose or effect of interfering with an individual's performance or creating an intimidating, hostile, or offensive environment" (Carey, 1982).

The Navy's position on sexual harassment is as follows:

> "The Department of the Navy has issued policy guidelines and has taken a firm stand against sexual harassment of naval military and naval civilian personnel. Ultimately, however, it will not be laws and regulations and policy statements which stop sexual harassment, it will be Navy people. It is the responsibility of all naval personnel to support Navy policy and help stop this misconduct. Navy leaders are charged with setting a good example and striving to provide an atmosphere where all feel valued and secure in their work environment. Leaders have the responsibility of taking prompt corrective action upon seeing or hearing of maltreatment of subordinates. Co-workers should assist victims and discourage harassers by refusing to accept or contribute to an atmosphere in which any person or group feels free to downgrade or take advantage of any other. They should view sexual harassment as they would any other kind of unmilitary, disruptive behavior and act appropriately. Victims have the responsibility of doing what they can to deter and discourage sexual harassment. If they are sexually

harassed they are responsible for informing the harasser that his or her behavior is objectionable and for getting help if they are unable to stop the harassment themselves. Harassers have the responsibility of stopping the misconduct once it has been defined as inappropriate and of learning to deal with their hostility, aggression, or insecurities in a more socially acceptable, nondestructive manner. All naval personnel should be encouraged to make themselves feel good by doing a good job rather than by putting others down or taking advantage of others" (Carey, 1982).

Relating Studies and Literature:

This section will briefly summarize different studies and literature found that is related to this report. Information that is applicable to certain specific sections of this study is discussed in detail within the applicable section.

A study that was conducted by Janice Yoder and Jerome Adams (Yoder, 1984), examined conflicts arising from women entering non-traditional jobs which are incompatible with supposedly feminine sex-roles. A survey of women graduates from the Military Academy was the basis of the study. Some of the applicable findings follow:

1. Career areas that women struggle most in are areas in which "sex-role prescription conflicts with other role demands". The role of military officers are stereotypically regarded as

masculine as is the act of pursuing a career. When women enter these traditionally male roles, role conflicts arise. The conflicts can cause problems with superiors who are "uncertain about how to deal with new and different female officers" and male peers who are "less comfortable working with women". The stresses developed from the role conflicts are possible reasons why many women report they are less willing to remain in male-dominated jobs than their male counterparts.

2. Women working within an organization in which their numbers are small and restricted is commonly called tokenism. "Token women" usually feel that others are less receptive to their presence. It has also be found that the attitudes of male members toward "token women" are mostly negative.

3. "Role demands and conflicts specific to women entering non-traditional roles may mediate against the success and retention of women in these roles. We believe that the difficulties women face in these new roles are not created by inadequacies in the women themselves, but rather arise from situational events, such as sex-role stereotypes unfavorable to women".

A study conducted by Joesfina Card and William Farrell (Card, 1983) linked the retention of ROTC students to three different factors. When a person has "early socializing influence from the family" and has "much prior accurate knowledge about the career" and has "realistic expectations about the career", and these "expectations are confirmed by experience" then the person is more likely to have an "intention to remain in the career

path". The findings of the Card and Farrell study would suggest that women CEC officers who have socializing influences from their family such as a mother who works, a father who is in the military, a brother who is an engineer, etc., are more likely to continue their careers.

A study conducted by Ada Keown and Charles Keown (Keown,1985) looked for factors that made business women successful. Some of the findings are:

1. Only a few subjects had special relationships with their fathers.
2. Many women seemed to integrate marriage into their lives well but the addition of children made the integration of career and personal life more difficult.
3. Many women believed that "being a female" was an asset, and they did not perceive themselves to be discriminated against by men.

A survey conducted by Tony Keenan, Tim Newton and Chris Logue on 130 members of the Women's Engineering Society found that female graduate engineers are treated differently at work than their male counterparts in a number of important ways (Keenan, 1985). Most women surveyed felt that males are "skeptical about a female engineer's technical competence" and "lower-level colleagues treated them differently". Some women also felt that superiors and same-level colleagues also treated female engineers differently.

An article published in *Technology Review* and written by H. Patricia Hynes, a senior environmental engineer employed by the Environmental Protection Agency, discussed some problems that women engineers face: "Throughout my career I have watched men being groomed for management because of the perception that they have a "career" while women have only a "job". And I have observed that women do have to produce better work to be as visible as men and to be evaluated and rewarded equally" (Hynes, 1984). She also discusses how men, in some cases, try to diminish a woman's authority by addressing her by her first name or by "my dear....", and also how they desire to shelter and protect women in work situations when the women are trying to perform their work.

An article written by Lilli Hornig discusses how "underrepresentation" and discrimination are related in complex ways and are reasons why women do not stay in male dominated professions. She also discusses how women in technical fields feel they are "treated not as valued colleagues but as objects of unwanted sexual attention...the way women are treated very much affects the extent of their participation" (Hornig, 1984).

Articles and books were found that discussed different skills women naturally possess and how these skills may make a difference in the work place. Carol Crosthwaite's speech entitled: "Working in a Man's World: Are Women Making Progress?" discusses how the work place needs women's skills by elaborating on John Naisbitt's book *Reinventing the Corporation*": "[John Naisbitt] says people will be the determining resource in a

competitive world and thus the need for human values in the workplace. Women are strong on people awareness and skills. He talks about managers as facilitators, not order-givers. That's women's style. Women operate through mutual interest rather than manipulation. He talks about the increasing role of intuition, versus strictly the numbers in making management decisions. Women have been using their intuition all along" (Crosthwaite, 1986). In an article by Samuel Florman entitled "Will Women Engineers Make a Difference?", he also discusses different qualities women might bring to engineering that will improve the industry. "Engineers who are able to communicate as well as solve problems, who work well with other people, and who are informed about and sensitive to key social and political issues make better leaders. And we certainly could use more engineers in positions of leadership in this highly technological age. Thus, I believe there would be a clear benefit to society from having more women in engineering, as well as from having more men with a heightened appreciation of the values inherent in a liberal education" (Florman, 1984).

RESEARCH METHODOLOGY

Developing The Survey

The first step in performing this survey was to develop a questionnaire. The questionnaire originated through a brainstorming session between the advisor, Dr. Jimmie Hinze, and the author from which a list of questions was developed. The questions used in the questionnaire fell into two categories: one portion consisted of questions about the individual's family and personal life, and the second portion asked about the individual's working life. The questions were designed so that information would be obtained about each person's characteristics, opinions, and work experiences, yet allow them to remain anonymous so more frank answers would result. The questions were formatted so the person's response was in the form of a short phrase or a selection of the answer among several that were provided. The draft questionnaire was read over the phone to LCDR Moore, the CEC Accessions Officer, who recommended rewording one question and adding a question about how the individual found out about the CEC. The final questionnaire contained 28 questions plus two optional questions. The final version of the questionnaire incorporated the recommendations of LCDR Moore.

The second step in performing the survey involved the identification of a population to survey. The CEC detailing office provided a listing of all women CEC officers and their addresses. The list of women officers totalled 82. Six officers

on the list had not completed the preparatory schools for the CEC; so consequently they had no experience as a Civil Engineer Corps officer. These officers were excluded from the survey. The questionnaire was pretested with two women CEC officers. The two officers felt that no revisions were necessary so the cover letter, questionnaire, and an envelope for returning the questionnaire were mailed to the remaining women CEC officers. The cover letter requested the officers to return the questionnaire within thirty days. All officers were mailed a reminder notice fifteen days prior to the thirty day deadline. A copy of the cover letter, questionnaire and reminder notice is included in Appendix A. Of the 76 questionnaires mailed, 70 were returned which represents a 92.1% response rate.

Computer Use in Determining Results

The computer program used to analyze the data collected from the survey was the University of Washington's Statistical Package for the Social Sciences (SPSSX). The information from each questionnaire was coded and entered into the computer in a eighty column format as displayed in Appendix B. Some of the questions required the respondent to fill in an answer. These answers were combined into groups that best represents the variety of answers. SPSSX has the capability of performing various statistical tests on a given set of data. Before any tests were conducted, however, the data was defined and labelled as shown in Appendix B. Most of the labels are self-explanatory when compared with the questionnaire in Appendix A. The first stages in the analysis was to generate the frequencies of responses. A second stage was

to isolate the responses of certain groups such as the married officers, officers above the grade of LTJG, and officers with children. This was performed to see if any trends in the data were obvious.

Another series of tests consisted of generating Kendall correlation coefficients. The Kendall correlation test compares an independent variable such as "age" or "marital status" with a dependent variable measuring the level of harassment experienced, as measured by variables such as "treated differently because of being a women" or "experienced sexual harassment." The variables are considered significantly correlated with one another when the level of significance, "p" , is below .05.

Research Sources

This section will very briefly discuss the research effort involved in obtaining information for three of the subjects covered in this report. If further research on this topic is conducted, duplication in the research effort on these three subjects can be avoided. The three subjects include the first women to enter the CEC, women officers who have resigned from the CEC, and policies affecting women in the Navy.

The information on the first women in the Civil Engineer Corps was found to be very limited. A Librarian at the Civil Engineer Corps' Ben Morrell Library in Port Hueneme, California provided a Navy news release dated August 23, 1943 which discussed the entry of the first woman into the CEC. The *Washington Post* also published the information from the news release on August 27,1943. Another article was found in the *Navy*

Civil Engineer Magazine about the second women who entered the CEC in 1944 (Chance, 1973). To see if more information could be found on these two women, a search into both the *Engineering Index* and *Who's Who in Civil Engineering* from the years of 1940 through 1948 was conducted but no additional information was found. Moreover, government documents published during World War II about women in defense did not mention the CEC as a possible career choice for women.

Nineteen women CEC officers have resigned or in the process of resigning their commissions. Information on the officers who have resigned may provide some insight to problems that affect retention. One source of information for the reasons for resignation is the officer's resignation letters. These letters were not researched because the CEC detailers advised that the letters usually do not give specific reasons for resigning. Four of the women who are resigning or have resigned were contacted and their reasons are provided in Appendix C. Information from people familiar with six other officers who have resigned is also documented in Appendix C. The remaining officers who have resigned could not be located.

Only four resources for historical information regarding women in the military were identified. The first was CDR Lucie, USN, who is Director of Women's Programs for the Navy; the second was Major Brown, USMC, who is secretary for the Defense Advisory Committee on Women in the Service (DACOWITS); the third was a book by Major General Jeanne Holm, USAF (Ret.), titled *Women in the Military* which was recommended by both CDR Lucie and Major Brown; and the fourth consisted of the transcripts from hearings

on "Women in the Military" held before the Military Personnel Subcommittee of the Committee on Armed Services, House of Representatives dated February 1980. Another possible source for information about women in the Navy would be the *Navy Times*, but the University of Washington's libraries, the Bremerton Naval Shipyard's library and the Bangor Naval Submarine Base's library did not have back issues available research.

RESULTS

Of the seventy-six (76) questionnaires mailed, a total of seventy (70) were returned which represents a 92.1 per cent response rate. The information from the responses was entered into a computer and various statistical tests were run. The statistical results and a discussion of those results are presented in the following paragraphs. This chapter is organized in the same order as the questionnaire - into two parts (a copy of the questionnaire is provided in Appendix A.). The first part presents the results from the questions that requested information about the individual. The second part presents the results from the questions that requested information about the individual's work experience. The conclusions derived from the results will be discussed in the chapter entitled Summary, Recommendations, and Conclusions.

PART I - INFORMATION ABOUT THE INDIVIDUAL:

Question 1:

Table 1

What is your grade?

Grade*	Frequency	Percent
ENS	24	34.3
LTJG	18	25.7
LT	26	37.1
LCDR	2	2.9
Total	70	100.0

(* Ensign, Lieutenant junior grade, Lieutenant, Lieutenant-Commander)

Women started entering the Civil Engineer Corps (CEC) in 1973 and are not senior enough to be promoted to the higher ranks. Most promotions below the rank of Lieutenant are practically automatic so most women officers who have chose to remain on active duty have been promoted. There are only two women officers who were eligible for LCDR and they have been promoted.

Question 2: Table 2

How long have you been in the CEC?

Years	Frequency	Percent	Cum. Percent
1.0	15	21.4	21.4
1.5	1	1.4	22.8
2.0	12	17.1	39.9
2.5	4	5.7	45.6
3.0	12	17.1	62.7
3.5	2	2.9	65.6
4.0	7	10.0	75.6
4.5	3	4.3	79.9
5.0	2	2.9	82.8
6.0	5	7.2	90.0
7.0	3	4.3	94.3
9.0	3	4.3	98.6
14.0	1	1.4	100.0
Totals	70	100.0	

Over 75% of the respondents have been in the CEC for four years or less.

Question 3:

What is your age?

The majority (56%) of the respondents' ages, were between 22 and 25 years. 31% were between 26 and 30 years, and 13% were over 30 years.

Question 4a:

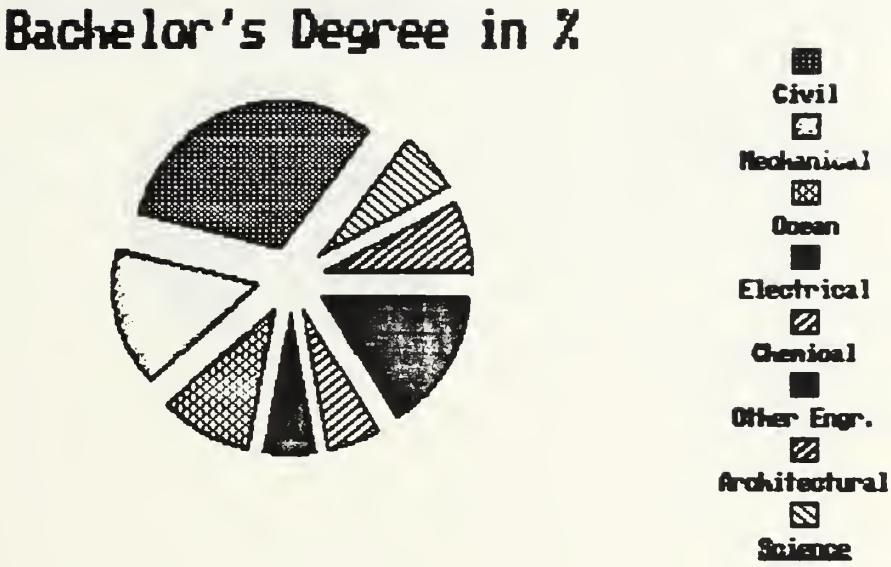

Table 3

What is your bachelor's degree in?

Type	Frequency	Percent
Civil	22	31.4
Mechanical	11	15.7
Ocean	7	10.0
Electrical	4	5.7
Chemical	4	5.7
Other Engr.	11	15.7
Architectural	6	8.6
Science	5	7.1
Total	70	100.0

The approximate "mix of degrees" desired by the CEC is: 50% civil engineering, 20% mechanical engineering, 20% electrical engineering, 5% architecture, and 5% other engineering disciplines (NAVFAC P-1, 1986). The "mix of degrees" for women officers in this survey varies greatly from the desired "mix".

Question 4b:

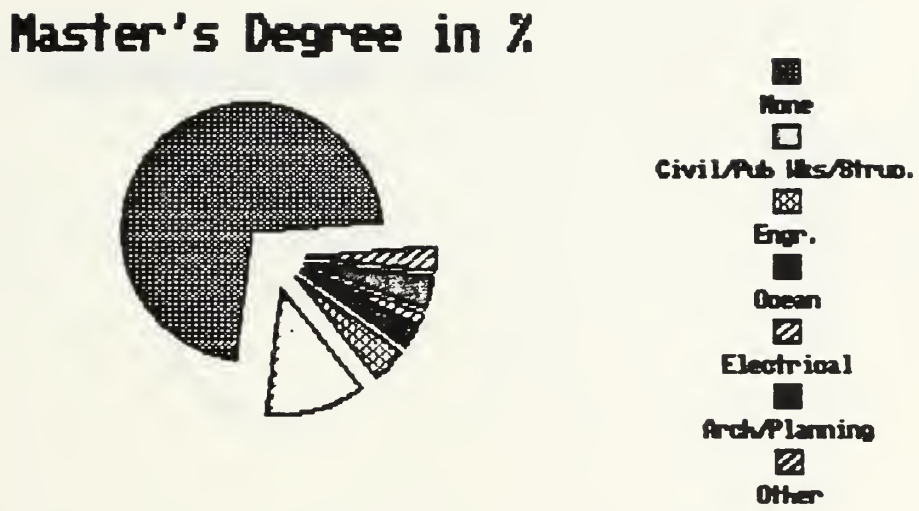

Table 4

What is your master's degree in?

Type	Frequency	Percent
None	50	71.4
Civil/Pub Wks/Struc.	9	12.9
Engr.	3	4.3
Ocean	2	2.9
Electrical	1	1.4
Arch/Planning	3	4.3
Other	2	2.9
Totals	70	100.0

Most master's degree programs do not begin until the officer has served three years in the CEC. Since most women officers have been in the CEC less than three years, they have not yet started their master's degree program.

Question 5:

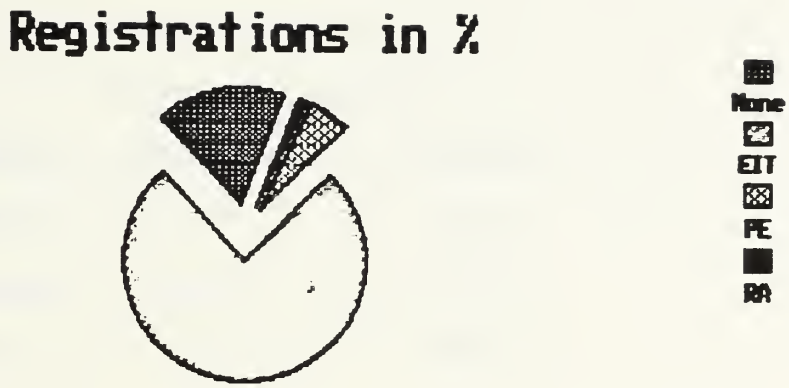

Table 5

List registrations, if any.

Type*	Frequency	Percent
None	12	17.1
EIT	53	75.7
PE	4	5.7
RA	1	1.4
Total	70	100.0

(* Engineer in Training, Professional Engineer, Registered Architect)

Even though women officers on the whole are considered to be rather junior, the number who are registered is higher at 83%. The percentage of registered women officers is slightly above the percentage for the total number of CEC officers at 80% (NAVFAC, Career 1986).

Question 6:

Table 6

Marital Status

Status	Frequency	Percent
Single	34	48.6
Married	36	51.4
Total	70	100.0

Over half of the women officers surveyed are married. A correlation between grade and marital status exists. The women in the more senior grades are more likely to be married ($p<.05$).

A study conducted on women who have become successful executives found that the women were able to integrate marriage into their lives without affecting their success (Keown, 1985). The correlation between marital status and grade seems to show that the women CEC officers also have been able to integrate marriage into their working lives without affecting their promotions which is a measurement of success.

Of the married CEC officers, the occupations of their husbands are shown in the next table.

Table 7

Husband's Occupation

Type	Frequency	Percent
Naval Officer	17	47.2
CEC Officer	7	19.4
Marines	1	2.8
Student	4	11.1
Engineer	3	8.3
Other	4	11.1
Total	36	100.0

It is interesting to note that 70% of the husbands are serving in the military. Assigning both the military wife and husband to the same location and into career enhancing jobs is a formidable task. The Navy policy for assigning married couples states: "every effort will be made to allow military couples to move together in the same manner as non-military couples. Whenever possible, matching rotation dates will be established to ensure collocation in future assignments." The policy goes on to state that military couples must "maintain worldwide availability" and may request collocation when a "valid billet exists" (DACOWITS, 1986). Therefore there is no guarantee that military couples will be stationed together. When women in the CEC are married to members of the other military services, the Navy policy states that it will follow a spirit of "cooperation with the spouse's service in the couple's assignment" (DACOWITS,

1986). Since military members move approximately every 3 years, women officers who are married to civilians have an even more difficult situation when their husband have an established career and his relocation is not possible unless he resigns from his job. A possible retention problem for women CEC officers may exist when they are required to make a choice between continuing their careers or living in the same location as their spouses.

Question 7:

Number of dependent children and their ages:

Nine out of the 70 women responding to the survey (13% of the respondents) had one or two children. None had more than 2 children. As shown in a later table, Table 8, 70% answered "yes" or "maybe" when asked if they plan to have children while in the CEC. Of the 14 children that were listed in the responses, 13 are under the age of four. Further discussion about child care is found under Question 8.

Question 8:

Table 8

Do you plan to have children while in the CEC?

Answer	Frequency	Percent
Yes	16	22.9
Maybe	32	47.7
No	22	31.4
Total	70	100.0

Over 70% of the respondents indicated "yes" or "maybe" that they plan to have children while in the CEC. The United States Census Bureau has collected information on working women and has found that 86% of the working women in the United States expect to have two children and 14% expected to remain childless (Joint Economic, 1983). Less women CEC officers plan to have children while serving on active duty than working women in the overall population.

No correlation was found between marital status and the question on planning to have children; however, many single women did respond that "they need to find a husband first." A correlation was found between how long the officers will stay in the CEC and the desirability of having children while in the CEC. The officers who plan to have children indicated they will stay in the CEC longer ($p<.05$). Apparently, the officers who have

decided to make the CEC a career also plan to have children. With so many respondents indicating that they may have children while in the CEC, the policies affecting child care and maternity leave will probably play an important role in the retention of women officers.

Performance has shown to decrease when people (both male and female) worry about the care of their children (Joint Economic, 1984). With 70% of the married women officers being married to military members, the performance of both officers could be affected.

The Department of Defense's policy regarding child care for military members is that "military parents should pay most of the operating costs for child care services" (DACOWITS,1986). The Navy supports some child care centers on larger Navy bases, centers that are on the most part self-sustaining (break-even) and are a part of the morale, welfare, and recreation program. A brief telephone survey was conducted with 7 child care centers in San Diego California; Norfolk, Virginia; Bremerton, Washington and Charleston, South Carolina. Six of the seven had waiting lists that were for at least one month long and out of the seven, two lists were for twelve months. All child care centers contacted were not open 24 hours a day which may be an important service to those military officers who are required to stand overnight duty. With such limited child care services provided by the Navy, it is up to the military members to find their own child care services. In those instances of new duty stations, the quality of the child care services will be unfamiliar to the

parents. Recognizing that the majority of women officers plan to have children while in the CEC, better child care services may be a factor to improve retention of women officers and to also entice women to join. The Navy's maternity policy will be further discussed under Question 9.

Question 9:

Table 9

Do you think the Navy's maternity policy is:

Answer	Frequency of Total	Percent of Total	Percent w/o children	Percent with children
Excellent	1	2.2	2.6 (1)	0.0 (0)
Good	20	43.5	47.4 (18)	25.0 (2)
OK	9	19.6	15.8 (6)	37.5 (3)
Fair	7	15.1	15.8 (6)	12.5 (1)
Poor	9	19.6	18.4 (7)	25.0 (2)
Totals	46	100.0	100.0 (38)	100.0 (8)

(Numbers in parenthesis are the number of responses)

Only 46 out of the 70 respondents expressed an opinion on the Navy's maternity policy. The remaining 24 answered "did not know". The Navy's policy concerning pregnancy is summarized in this report in the Literature Review chapter in the section on Current Issues. Overall most women CEC officers (65%) feel the Navy's maternity policy is "excellent", "good", or "OK". Women officers who did not have children tended to rate the

Navy's maternity policy slightly higher than the women officers who have children. A survey conducted by *Money Magazine* listed the Navy's maternity policy as one of the ten best of the major employers in America (*Money*, 1985).

Question 10:

Table 10

How many children were in your family?

Number of siblings	Frequencies	Percent
0	2	2.9
1	19	27.0
2	13	18.6
3	13	18.6
4	12	17.1
5	7	10.0
Over 5	4	5.8
Totals	70	100.0

Only two of the respondents were the only child in their family which represents 2.9% of the total responses. In the last 25 years, approximately 18% of the children born in the U.S. in the past 25 years had no siblings (U.S. Dept. of Commerce, 1985). It seems that women with siblings are much more likely to join the CEC. Over 84% of the respondents have one or more brothers and over 67% have one or more sisters.

Question 11:

What is the occupation of your mother and father?

Over 74% of the respondents' mothers work outside the home: 45% have traditional professional jobs as teachers, nurses, and business managers; 20% work in a traditional non-professional jobs as secretaries, clerks, and tellers; and 9% work as non-traditional professionals such as lawyers, engineers and microbiologists. "Housewife" was the response for 23% of the respondents and 3% did not answer the question. In the 1950's, approximately 40% of the total population of women between the ages of 25 through 29 worked (U.S. Dept. of Commerce, 1985). Those women are most likely the same ages as the mothers of women CEC officers. Surveys have shown that "children of mothers who hold jobs approve of maternal employment and that the daughters intend to work... since female children learn their future sex roles by observing their parents" (Chafe, 1972). This survey shows that the mothers of women CEC officers are more likely to work than the mothers of the general population. As a result of having a mother that works, the daughter (CEC officer) is encouraged to work. A strong correlation was found between working mothers of CEC officers and the length of time the officer expects to stay in the Navy. The women officers who have mothers that work will tend to stay in the Navy longer than the officers who have mothers that do not work ($p<.01$). However, no correlation was found between mothers that work and the length of time the women CEC officers plan to stay in the construction industry. A strong correlation was also found between the number

of siblings and whether the mother of the officers worked or not. The officers' mothers that do not work tend to have more children than the officers' mothers that do work ($p<.02$). Since daughters tend to follow the example of their parents, it follows that most women in the CEC are more likely to have a smaller number of children.

Over 46% of the respondents' fathers work in occupations related to the CEC such as engineers, military officers, or in the construction field. Over 34% have other professional jobs as business managers, investors, and teachers; 14% have blue collar jobs; and 6% listed their fathers as deceased or they did not respond.

Question 12:

Do you have any close family members that work in the construction field? If yes, who? If yes, did this influence you to enter the construction industry?

Only 29% of the respondents had close family members in the construction industry. Of the 29%, fathers were cited 59% of the time, brothers at 24%, and others at 17%. Of the 29% responding "yes", 48% felt that they were influenced by family member to enter the construction industry.

Question 13:

Do you have any close family members that work in the Navy? If yes, who? If yes, did this influence you to enter the construction industry?

Over 25% responded "yes" that they had close family members in the Navy. Of the 25%, fathers were cited 44% of the time, sisters at 28%, and brothers at 24%, and others 4%. Of the 25% responding "yes", 68% felt that they were influenced by a family member to enter the Navy.

PART II - INFORMATION ABOUT THE INDIVIDUAL'S WORK EXPERIENCE

Question 14:

Table 11

What prompted you to choose construction work?

Answer	Frequency	Percent
Challenging,interesting,satisfying	32	45.8
Use Degree	17	24.3
Best offer from Academy,*Line too limited, CEC scholarship	11	15.7
Enjoy math and science	5	7.1
Do not know,did not answer	5	7.1
Total	70	100.0

* Line refers to commissions in the regular Navy as opposed to a staff corps such as the Civil Engineer Corps.

Question 15:

Table 12

How did you find out about the Civil Engineer Corps?

Answer	Frequency	Percent	Cum. Percent
Recruiter	25	35.7	35.7
Naval Academy	18	25.7	61.4
NROTC	6	8.6	70.0
Friend	12	17.1	87.1
Family member	6	8.6	95.7
Advertisement	2	2.9	98.6
Did not Answer	1	1.4	100.0
Totals	70	100.0	

Most (70%) of the responding women CEC officers entered the CEC through a Navy Program: Recruiting, Naval Academy, or NROTC.

Question 16:

Table 13

Do you feel compelled to try to work harder on the job just because you are a woman?

Answer	Freguency	Percent	Cum.Percent
Often	15	21.7	21.7
Occasionally	30	43.5	65.2
Rarely	9	13.0	78.3
Never	15	21.7	100.0
Totals	69	100.0	

Over 65% of the officers feel they need to work harder on the job just because they are a woman.

Question 17:

Table 14

Do you feel you are expected to work harder than your male counterparts in order to "measure up"?

Answer	Frequency	Percent	Cum.Percent
Often	14	20.3	20.3
Occasionally	22	31.9	52.2
Rarely	16	23.2	75.4
Never	17	24.6	100.0
Totals	69	100.0	

The responses for questions 16 and 17 are quite similar and there is a very strong correlation between the two questions ($p<.01$). The two questions seem to be essentially the same question asked in different ways.

A question similar to questions 16 and 17 was addressed to 130 members of the Women's Engineering Society (WES) during a survey which produced similar results. Approximately 60% who responded to the WES survey, stated that they felt "male engineers and non-engineering colleagues are skeptical about [the woman engineer's] competence" and "you have to work twice as hard to prove you are competent" (Keenan, 1985).

Another study conducted by Yoder and Adams (Yoder, 1984) may explain why women feel that they need to work harder. The study found role conflicts when a woman works in a stereotypical male

role. The role conflicts can manifest themselves into acceptance problems between the woman and her male supervisor and co-workers (Yoder, 1984). It follows that when men treat women different because they are perceived to be in a man's job that the women feel they have to work harder in order to be accepted.

Question 18:

Table 15

Have you experienced sexual harassment on the job?

Answer	Frequency	Percent	Cum.Percent
Often	2	2.9	2.9
Occasionally	19	27.5	30.4
Rarely	31	44.3	75.4
Never	17	24.6	100.0
Totals	69	100.0	

Approximately 70% of the respondents stated that they rarely or never experienced sexual harassment on the job. A strong correlation was found between experiencing sexual harassment and the number of years in the CEC. Women who have been in the CEC longer indicate that they have experienced more sexual harassment ($p<.02$). Significant correlations were not found between "experiencing sexual harassment" and grade ($p<.08$) or age ($p<.06$), two variables that are also indirect measurements of the number of years in the CEC. However, these correlations have a

tendency towards significance. There are three possible reasons to explain the correlation found between "sexual harassment" and the "number of years in the CEC". The first reason is that the majority of the women CEC officers have been in the CEC less than 3 years and may have not been exposed to sexual harassment, while the more senior women have been exposed to more harassment since they have been in longer. The second reason is that the more senior women might be more sensitive to sexual harassment because they entered the Navy during the height of the women's liberation movement which has received less publicity in the last several years. The third reason is that the first women entering the CEC may have been subjected to much more harassment simply for being the first women to enter the CEC. Until more research is completed, it cannot be determined whether or not women in the CEC will experience more sexual harassment the longer they stay in the CEC.

Question 19:

Do you feel you are treated differently by your co-workers because you are a woman? If yes, briefly explain.

The majority of the respondents, 60%, felt that they are treated differently by their co-workers. Of the 60% who answered "yes", 40% said that the men they work with feel "threatened", "insecure", or "just have a bad attitude about women"; 37% said they receive "more attention but not necessarily negative", for example, people make comments like "the scenery is better in this

office, I wish I worked here" or "I have never met a girl engineer before"; 23% of the respondents said they had to prove themselves or "they [men] do not think I know anything."

A study conducted by Keenan, Newton and Logue (Keenan, 1985) stated that 33% of female engineers felt "they are treated differently from male engineers by same-level colleagues". One possible explanation for the different results between the study of women CEC officers and the above mentioned study is that one group of women engineers work within a military organization and the other does not. Sex role studies (Card, 1984) have found that a military officer is viewed as "the epitome of male-dominated vocations" by society. When a woman enters a stereotypical male role, discrimination is usually directed towards her as discussed in a study by Card and Farrell (Card, 1984). If women enter the "epitome" role of military officer together with the traditionally male role of engineer, it stands to reason that these women may experience more discrimination than women engineers who are not in the military.

About 22% of all respondents answered that they were "treated differently not necessarily negatively". A study conducted by Keown and Keown (Keown, 1985) found that the majority of successful women executives feel that being a woman helps them. The executives stated that by being a woman they stand out from the group so their performance is more likely to be recognized. It follows that being treated differently, in some cases, can be an advantage to a woman.

Question 20:

Do you feel you are treated differently by your supervisor because you are a woman? If yes, briefly explain.

About 28% of the respondents felt they are treated differently by their supervisors. Over 69% who answered "yes" felt their supervisors treated them "like a daughter, not like they treat the men" or "he is unsure about how to handle a woman" or that he has a "hard time accepting me"; 16% felt their supervisors treated them "differently but not necessarily negatively"; another 15% felt that the supervisor "thrusts me into the lime light" or "gives me extra duties such as planning social functions or luncheons". Giving women officers extra duties simply because they are women is an action against the Navy's Equal Opportunity Program that states "Navy women are not to be artificially or arbitrarily grouped as a separate entity nor assigned additional or collateral duties based on sex" (Card, 1982).

A study conducted by Keenan, Newton and Logue (Keenan, 1985) found that 48% of the female engineers surveyed felt they are being treated differently by their supervisors. One possible explanation for the different results of the two surveys could be that the Navy's mandatory sexual harassment training for supervisors has increased supervisors awareness of how they treat their employees.

Question 21:

Do you feel you are treated differently by your clients because you are a woman? If yes, briefly explain.

Over 55% of the respondents felt they are treated differently by their clients. Contractors were cited as being the ones most likely to treat women differently. Some of the comments the respondents gave and the percent response rate were: "they do not think I know anything", "they do not take me seriously" or "they try to take advantage of me" 29%; they are "not used to a woman as an officer or engineer" or "they try to go around me" 12%; "I receive less respect" or "I have to prove myself" 11%; and "the men in foreign countries are very prejudiced, it is part of their culture" 3%.

Observations on the Series of "Sexual Harassment" Questions, Numbers 17,18,19,20, and 21:

Table 16

Do you feel you are treated differently by:	"Yes"
Co-workers	60%
Supervisors	29%
Clients	55%

The women officers felt that they are treated differently mostly by co-workers and clients but to a lesser extent by their supervisors. There are two possible explanations for the differences. The first is that supervisors are required by the Navy to attend sexual harassment training programs so they are more aware of how they are to treat their subordinates. The second reason could be that the women officers generally spend more time with their clients and co-workers than with their supervisors.

Many different correlations were found as follows:

a. When an officer felt she had been more frequently subjected to sexual harassment, the more likely she felt she had to work harder to "measure up" ($p<.03$).

b. When an officer felt she had been more frequently subjected to sexual harassment, the more likely she felt she had been

treated differently by her co-workers ($p<.01$) and also by her supervisor ($p<.01$).

c. When an officer felt she had been treated differently by her co-workers, she also felt that she had been treated differently by her clients ($p<.02$) and also her supervisor ($p<.01$).

d. When a woman CEC officer felt she had been treated differently by her co-workers, she also felt she needed to work harder to "measure up" ($p<.03$).

Question 22:

Table 17

How long do you feel you will be in the construction field?

Answer	Frequency	Percent
Do not know	6	8.6
5 years or under	21	30.0
6 to 15 years	13	18.5
20 years or over	30	42.9
Totals	70	100.0

A strong correlation was found between the answers to this question and the answers to "how long do you feel you will be in the Navy" ($p<.01$). This correlation implies that a woman CEC officer who is going to quit construction work will also quit the Navy and vice a versa.

Question 23:

Table 18

How long do you feel you will be in the Navy?

Answer	Frequency	Percent
Do not know	6	8.6
5 years or under	27	38.6
6 to 15 years	21	30.0
20 years or over	16	22.8
Totals	70	100.0

Approximately 40% of the women CEC officers indicated they will be resigning from the Navy within 5 years. For the total CEC, approximately 36% of the officers resign from the Navy within 5 years (Moore, 1986)

Correlations found between the answer to this question and the answer to others are summarized as follows:

The longer a woman officer has been in the CEC, the longer she expects to stay in the Navy ($p<.04$).

If the officer's mother works outside the home, it is more likely the CEC officer will stay in the Navy longer ($p<.01$)

If the officer is treated differently by her co-workers, it is more likely she will resign from the Navy earlier ($p<.04$).

If the officer is treated differently by her clients, it is more likely she resign from the Navy earlier ($p<.05$).

If the officer decides to leave the Navy, it is likely she will also leave the construction industry ($p<.01$).

Question 24:

Would you prefer that your supervisor was a man or a woman?

Over 81% of the respondents answered that it "does not matter" who their supervisor is, 19% stated they would prefer a man, and no one answered that they would prefer a woman. Some who answered that it "does not matter" caviled their answers with "as long as the woman is competent".

Question 25:

Would you prefer to have more women in the Civil Engineer Corps to work with?

Over 74% of the respondents answered that it "does not matter" if the CEC had more women, 24% answered "yes" they would prefer more woman, while 1% answered "no" they would not prefer more women in the CEC.

Question 26:

Table 19

Would you describe the major problem you have encountered on the job simply because you are a woman?

Answers	Frequency	Percent
a. No major problems	23	33.8
b. Credibility/prove myself	20	29.5
c. Need construction field experience before going to a construction job	7	10.3
d. I am treated as a woman rather than a professional	6	8.8
e. Not allowed to serve with the Seabees will hurt promotion opportunities	4	5.6
f. Contractors try to make women look bad whenever possible	4	5.9
g. I was denied a billet because a Command did not want a woman	2	2.9
h. Too hard to have babies and pursue a career in the CEC	2	2.9
Totals	68	100.0

Answers b,d,e,f,g seem to be problems relating to a form of discrimination. These answers represent approximately 53% of the total responses. Approximately 34% responded that they have not experienced any major problems and the remaining 23% of the responses were varied. Surprisingly, two people responded that they were denied a billet because a Command did not want a woman, an action that is discriminatory and against the Navy's policy of Equal Opportunity.

Question 27:

Table 20

What advice would you give to a young woman who is interested in entering the construction industry?

Answers	Frequency	Percent
a.Go for what you want but be aware of prejudices against women	24	35.8
b.Keep all relationships professional, conduct yourself as a person not a woman, know yourself	11	16.5
c.Get out in the field and get some hands-on experience	10	14.9
d.Be firm, prove yourself, do not use your sex as a tool, but keep your femininity.	9	13.4
e.If you do not know something ask and listen to people with experience.	8	11.9
f.Keep your sense of humor.	2	3.0
g.No advice, they [young women] do not listen anyways	2	3.0
h.Fight for Seabees	1	1.5
Totals	67	100.0

Question 28:

Table 21

If you could change a Navy policy to make working in the Civil Engineer Corps more rewarding or better for women, what would it be?

Answers	Frequency	Percent
Open up the Seabees to women	44	64.7
No changes necessary	9	13.4
Maternity policy, need more time	5	7.4
More women in key billets, no "women billets"	4	5.8
Detailing policy for married couples	2	2.9
Other	4	5.8
Totals	68	100.0

About 65% of the women officers feel that a Seabee assignment would make the CEC more rewarding or better. Currently, there are restrictions preventing women to serve in Seabee billets. These restrictions are more fully discussed in the chapter entitled Literature Review, in a section entitled Job Restrictions. Two women CEC officers have recently received orders to Seabee billets within the Amphibious Battalions and will be reporting to these billets shortly. There are still over 77 Seabee billets that are not available for initial assignment to women. Thus, only two such billets are open for women. Since 44 women CEC officers responded that a Seabee tour would make

their jobs more rewarding or better, a major problem is identified. As the policy now stands, most of these officers will not be able to serve in a Seabee billet.

SUMMARY, RECOMMENDATIONS, AND CONCLUSIONS

As stated in the Introduction, the objective of this report is to provide information on the characteristics, opinions, and ideas of the women officers in the Civil Engineer Corps (CEC), information that can be used to attract and retain the women officers as well as women in the civilian construction industry. To obtain information on women CEC officers, a survey was conducted where over 92% of the women CEC officers responded. This chapter will summarize the results from the survey, and present the recommendations and conclusions.

Summary of the Results:

Characteristics of Women CEC officers:

1. Approximately 34% of the women officer's grades are Ensign, 26% are Lieutenant-Junior Grade, 37% are Lieutenants, and 3% Lieutenant- Commanders. Over 70% have been in the CEC less than four years. Over 56% of the women CEC officers are under the age of 25, and 87% are under the age of 30.

2. Over 84% have bachelor's degrees in engineering, over 8% have bachelor's degree in architecture, and the remaining 8% have derees in other fields. The "mix of degrees" for women CEC

officers varies greatly compared to the CEC's desired "mix" (see Results chapter for the differences). Only 29% of the officers hold master's degrees.

3. Almost all women CEC officers are registered: 76% are Engineers In Training, 6% are Professional Engineers, 1% are Registered Architects.

4. About 52% are married, primarily to men who also serve in the military. Only 13% of the women CEC officers have children with almost all of the children being four years old.

5. Only 3% of the women CEC officers are the only child in their family. Over 74% of the officers' mothers work outside of the home. The women officers are more likely to stay in the CEC longer if their mothers work ($p<.01$). Over 46% of the women CEC officers' fathers work in occupations relating to the CEC.

6. Approximately 29% of the officers have close family members in the construction industry, and 25% of the officers have close family members in the Navy. Of the women CEC officers with close family members in the construction industry (29%) or the Navy (25%), approximately half felt these family members (primarily fathers) influenced them in their career choice.

Opinions and ideas of women CEC officers:

7. Over 70% of all women CEC officers answered "yes" or "maybe" when asked if they plan to have children while in the CEC. Over 66% of the total expressed an opinion about the Navy's maternity policy. Of those responding, most of the officers (65%) felt the policy was "excellent", "good", or "OK" while the remaining officers (35%) felt the policy was "fair" or "poor". The women who have children tend to rate the policy slightly lower.

8. The main reasons given for choosing a career in the construction industry were: "challenging" (46%), "use degree" (24%), "best career choice from the Naval Academy or other branches of the Navy" (16%). Most women CEC officers (70%) found out about the Civil Engineer Corps through a Navy Program: recruiting, Naval Academy or NROTC program.

9. The next two tables summarize responses to the questions asked about sexual harassment /discrimination:

Table 22

Question	Often	Occasionally	Rarely	Never
Do you feel compelled to work harder on the job just because you are a woman?	22%	44%	13%	21%
Do you feel you are expected to work harder than your male counterparts in order to "measure-up"?	20%	32%	23%	25%
Have you experienced sexual harassment on the job?	*3%*	*28%*	*44%*	*25%*

Table 23

Do you feel you are treated differently by:

	" yes"
Co-workers	60%
Supervisors	29%
Clients	55%

The women CEC officers briefly explained why they felt they are being treated differently. The reason most cited was that people do not take women CEC officers seriously nor do people feel women CEC officers can be credible engineers or officers.

10. Approximately 43% of the women CEC officers plan on remaining in the construction industry for over 20 years while only 23% expect to remain in the Navy over 20 years. Approximately 40% indicated they will be resigning from the Navy within 5 years. Factors that correlate with how long women officers will remain in the Navy are:

a. If a woman CEC officer's mother works outside the home, it is more likely the CEC officer will stay in the Navy longer ($p<.01$).

b. If the officer is treated differently by her co-workers, it is more likely she will leave the Navy earlier ($p<.04$).

c. If the officer is treated differently by her clients, it is more likely she will leave the Navy earlier ($p<.05$).

d. If the officer decides to leave the Navy earlier, it is likely she will also leave the construction industry earlier($p<.01$).

11. Over 81% of the women CEC officers responded that it "does not matter" who their supervisor is - man or woman, and 19% responded that they would prefer a man. Over 74% of the women CEC officers responded that it "does not matter" if the CEC had more women, and 24% responded that "yes" they would prefer more women CEC officers.

12. The major problems that the women CEC officers encountered on the job simply because they are women are:

a. No problems	34%
b. Credibility/prove myself	30%
c. Need more construction field training	10%
d. Treated as a woman rather than a professional	8%
e. No Seabee tour will hurt promotions	6%
f. Contractors discriminate against women	6%
g. Other	6%

13. Advice the women CEC officers would give a young women entering the construction industry:

a. Go for what you want but be aware of prejudices against women.	36%
b. Keep relationships professional, conduct yourself as a person not as a woman	17%
c. Get some field experience	15%
d. Be firm, prove yourself but keep your femininity	13%
e. If you do not know something ask	12%
f. Other	7%

14. A Navy policy that could be changed to make working in the Civil Engineer Corps more rewarding or better for women:

a. Allow women to serve within Seabees	65%
b. No changes necessary	13%
c. Maternity policy, need more time	7%
d. more women in key billets, no "women's billets"	6%
e. Other	9%

Recommendations:

1. With over 70% of the women CEC officers suggesting they will have children while in the CEC, the policies affecting pregnancy and child care will become much more important to the officers. Although most women feel that the pregnancy (maternity) policy was "excellent", "good", or "OK", the policy still lacks flexibility for individual tastes as evidented by the 7% who felt that the policy should be changed to allow more time (see number 14 above). No questions were asked of the women CEC officers about child care but since 70% of the officers suggested that they will have children while in the CEC, child care services constitute an issue to be addressed. The Navy's child care program seems to be inadequate overall and especially in helping to serve the special needs of military members (see the chapters entitled Literature Review and Results for further discussion on child care). These special needs include a 24 hour service for when the military member stands 24 hour duty, and the requirement to find quality child care in an unfamiliar location when the military member may move as frequently as every two years. Although, the Navy is financially and legally restricted to what child care services it may provide to members, the problem will exist and efforts to improve the child care services should continue.

2. Sexual harassment, which is a form of discrimination, appears to be a problem within the CEC when one applies the Navy's definition of sexual harassment: "conduct that has the purpose or effect of interfering with an individual's performance or creating an intimidating, hostile, or offensive environment" (Carey, 1982). Increasing the awareness of people to these issues has shown to be effective in reducing sexual harassment (Carey, 1982). Co-workers and clients were listed as the people who were most likely to discriminate against the women CEC officers. Mandatory training for non-supervisory civilian personnel and officers on the Navy's sexual harassment policies should be required. This training should increase the awareness to the Navy's policy on sexual harassment and discrimination, and inform people to the types of actions needed to combat this unprofessional behavior. The CEC should also make an effort to re-emphasize the Navy's intolerance to all forms of harassment and discrimination to its clients, namely, contractors and Architect-Engineer firms.

3. Over 70% of the husbands of women CEC officers are also in the military. Although only two women officers felt that the Navy's policy regarding married couples was poor, potential problems in the retention and moral of women CEC officers may develop if married couples are not transferred together. Currently the CEC detailers have a good record in trying to accommodate married couples (Schlesinger, 1984) and future assignments for married couples should be monitored to ensure continued success.

4. Over 65% of the women CEC officers feel that an assignment with the Naval Construction Forces (Seabees) would make the Civil Engineer Corps more rewarding or better for women. There is no law restricting women CEC officers from being assigned to Seabee billets, only policy restrictions (see discussion in Literature Review chapter). Both the Army and Marines assign women to deployable engineer units or companies (Appendix E). In fact, the army has just assigned Captain Sue Myers, USA, as a company commander within an Army Corps of Engineer's construction battalion in Frankfurt, Germany (Myers, 1986). The CEC has assigned two women to Seabee billets within the two Amphibious Construction Battalions. But there are over 77 initial Seabee billets and overall, more than 200 billets within the CEC to which women cannot be assigned. The CEC should intensely pursue changes to the policy of restricting any assignments of women CEC officers so women may become more equally competitive with their male counterparts and be provided a more rewarding career in the CEC. One avenue to solicit support for changes to this policy restricting women is the Defense Advisory Committee on Women in the Services (DACOWITS), an organization whose mission is to "help better utilize women in the Armed Forces"(DACOWITS, 1976).

Conclusions:

The seniority shaped wedge of women is slipping into the pool of Civil Engineer Corps officers. The laminar flow along the edges seems to become turbulent occasionally with eddies in the

form of harassment, discrimination and restrictions of assignments. However, the commendable goal of the CEC and the construction industry is to increase the wedge of women into a block which slips into place smoothly. To help streamline the flow of future women into both the Civil Engineer Corps and the construction industry, this report has identified the areas that create some turbulence and recommends ways to plane them. Additionally, this report has provided information on the characteristics and opinions of the women CEC officers that may also help in retaining and attracting women into the Civil Engineer Corps as well as the construction industry, and most importantly, allowing these organizations to better manage one of their most important resoures - **people**.

APPENDIX A

DEPARTMENT OF CIVIL ENGINEERING

University of Washington

April 4, 1986

)ear ,

I am a CEC officer and currently pursuing a graduate degree at :he University of Washington. As part of my graduate program, I am equired to conduct a research study. The study I have selected :oncerns with women's issues in the construction industry. I am .herfore requesting the assistance of all women CEC officers to :omplete the enclosed questionaire. The best source of information is rom women, like you, working in the construction industry who are :ncountering a variety of unique experiences working in a raditionally male industry. Your help is needed to complete the uestionaire as honestly as you can. The completed questionaires will e kept confidential and combined statisically so please feel free to nswer frankly. To abbreviate the questionaire whenever the term :onstruction is used the meaning includes all the various tasks a CEC fficer would perform i.e. maintenance, repair, facilities management, tc.

Although I have the support of the Navy in conducting this study; :he actual research study is an independent effort. After I have :ompleted the study, I will make the results available to management. 'his information may help management to respond better to our concerns nd help other women who are thinking about working in the :onstruction industry. Please return the completed questionaire in the nvelope provided by 30 April 1986. Thank-you.

Sincerely,

Connie Madden

Lt, CEC, USN

SURVEY OF WOMEN IN THE CIVIL ENGINEER CORPS

Please be frank. Answers to this survey will be kept confidential and ombined statisically. Your help is deeply appreciated.

ive information about yourself:

1. What is your grade?_____
2. How long have you been in the CEC?_____
3. What is your age?_____years.
4. What is your bachelors degree in?_____masters?_____
5. List registrations, if any (PE, RA, EIT, etc):_____
6. Marital status:___married___single
   If married, what is your husband's occupation? _____
7. Number of dependent children at your home:____
   Their ages:_____
8. Do you plan to have children while in the Civil Engineer Corps?
   ___yes___no___maybe
9. Do you think the Navy's maternity policy is
   ___excellent___good___ok___fair___poor___don't know
10. How many children were in your family?_____brothers_____sisters
11. What is the occupation of: your mother_____
    your father_____
12. Do you have any close family members that work in the
    construction field? _____yes_____no
    If yes, who?_____mother_____father_____sister_____brother
    _____cousin_____uncle_____aunt_____grandparent
    If yes, did this influence you to enter the construction
    industry?_____yes_____no
13. Do you have any close family members that work in the
    Navy? _____yes_____no
    If yes, who?_____mother_____father_____sister_____brother
    _____cousin_____uncle_____aunt_____grandparent
    If yes, did this influence you to enter the Navy?
    ____yes_____no

The following are questions about your work experience:

14.What prompted you to choose construction work?

15.How did you find out about the Civil Engineer Corps?

____recruiter ____advertisement ____family member ____friend

other:_____

16.Do you feel compelled to try to work harder on the job just because you are a woman?

___often___occasionally___rarely___never

17.Do you feel you are expected to work harder than your male counterparts in order to "measure up"?

___often___occasionally___rarely___never

18.Have you experienced sexual harrassment on the job?

___often___occasionally___rarely___never

19.Do you feel you are treated differently by your co-workers because you are a woman?

___ yes ___ no

If yes, briefly explain:_____

20.Do you feel you are treated differently by your supervisor because you are a woman?

___yes ___no

If yes, briefly explain:_____

21.Do you feel you are treated differently by your clients (such as A/E's, contractors, or other commands)? ___yes ___no

If yes, briefly explain:_____

22.How long do you feel you will work in the construction field?

___ years

23.How long do you feel you will be in the Navy?

___ years

24.Would you prefer that your supervisor was a man or a woman?

___woman___man___does not matter

25. Would you prefer to have more women in the Civil Engineer Corps to work with?

___yes ___ no ___ does not matter

26. Would you describe the major problem you have encountered on the job simply because you are a woman? _____

_____

_____

_____

27. What advice would you give to a young woman who is interested in entering the construction industry? _____

_____

_____

_____

28. If you could change a Navy policy to make working in the Civil Engineer Corps more rewarding or better for women, what would it be? _____

_____

_____

Optional questions:

29. If you are willing to be phoned concerning your response, please state your name and telephone number.

Name:_____ Telephone number: (___)_____

30. If you would like a copy of the results, please state your name and address. Note: to remain anonymous, please send your name and address in a seperate letter if you want a copy of the results.

Name:_____ Address:_____

_____

THANK-YOU!

APPENDIX B

UTER PROGRAM FOR SPSSX:

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.
OUNT
CECD.
X.

 HANDLE CECD/NAME = 'CECD'
 LIST FILE=CECD / NO 1-2 GRADE 4 YRCEC 6-7 AGE 9-10 BSDEGR 12
TER 13 REGIS 15 MARITA 17 HUSOCC 19 CHILD 21 AGE1 22-23 AGE2 24-25
LDCEC 27 NAVMAT 29 FAMBRO 31 FAMSIS 32 MOMOCC 34 POPOCC 35
CON 37 FAMCON1 38 FAMCON2 39 FAMNAV 41 FAMNAV1 42 FAMNAV2 43
OSE 45 INCEC 47 HARDER 49 MEASURE 51 SEXHARR 53 TREATCO 55
ATCO1 56 TREATSU 58 TREATSU1 59 TREATCL 61 TREATCL1 62 LONGCON 64-65
GNAV 67-68 WKWITH 70 WMCEC 72 MAJPROB 74 ADVICE 76 POLICY 78 COPY 80
E LABELS GRADE 1 'ENS' 2 'LTJG' 3 'LT' 4 'LCDR'/
EGR 1'CIVIL' 2'MECH' 3'OCEAN' 4'CHEM' 5'ARCH' 6'AERO' 7'OTHER ENGR'
CIENCE' 9'EE'/
TER 0'NONE' 1'CIVIL' 2'PUB WKS' 3'ENGR' 4'STRUCT' 5'EE' 6'ARCH'
CEAN' 8'MAT SCI'/
IS 1'EIT' 2'PE' 3'RA' 0'NONE'/
ITA 1'MARRIED' 2'SINGLE'/
OCC 0'NONE' 1'NAV OFF' 2 'CEC' 3 'STUDENT' 4'ENGR' 5'MARINES' 6'OTHER'/
LDCEC 1'YES' 2'NO' 3'MAYBE'/
MAT 1'EXCELLENT' 2'GOOD' 3'OK' 4'FAIR' 5'POOR' 6'DO NOT KNOW'/
OCC 1'TRAD. PROFESS' 2'HOUSEWIFE' 3'TRAD. NON-PROFESS'
NGINEER' 5 'NON-TRAD. PROFESS.'/
OCC 1'PROFESSIONAL' 2'ENGINEER' 3'CONSTRUCTION' 4'CEC'
FFICER OTHER SERV' 6'BLUE COLLAR' 7'NAVAL OFFICER' 0'DECEASED'/
CON 1'YES' 2'NO'/
CON1 1'MOTHER' 2'FATHER' 3'SISTER' 4'BROTHER' 5'COUSIN' 6'UNCLE'
UNT' 8'GRANDPARENT' 0'NONE'/
CON2 1'YES' 2'NO'/
NAV 1'YES' 2'NO'/
NAV1 1'MOTHER' 2'FATHER' 3'SISTER' 4'BROTHER' 5'COUSIN' 6'UNCLE'
UNT' 8'GRANDPARENT' 0'NONE'/
NAV2 1'YES' 2'NO'/
OSE 0'DO NOT KNOW' 1'BEST OFFER-ACADEMY' 2'ENJOY MATH&SCIENCE'
INE TOO LIMITED' 4'CHALLENGING' 5'INTER.& SATIS.'
EPONSIB. & EXPER.' 7'USE DEGREE' 8'CEC SCHOLARSHIP'/
EC 1'RECRUITER' 2'ADVERTISEMENT' 3'FAMILY MEMBER' 4'FRIEND' 5'NAVAL ACADEMY'
ROTC' 7'OTHER'/
DER 1'OFTEN' 2'OCCASIONALLY' 3'RARELY' 4'NEVER'/
SURE 1'OFTEN' 2'OCCASIONALLY' 3'RARELY' 4'NEVER'/
HARR 1'OFTEN' 2'OCCASIONALLY'  3'RARELY' 4'NEVER'/
ATCO 1'YES' 2'NO'/
ATCO1 1'THREATEN - UNSECURE'
TTEN-NOT NECES NEG' 5'BAD ATTITUDE'
IL-THREATENED' 7'NOT KNOW ANYTHING'
ROVE YOURSELF'/
ATSU 1'YES' 2'NO'/
ATSU1 1'LIKE A DAUGHTER' 2'DIFF-NOT NECESS NEG'
```

```
NSURE HANDLE WOMEN' 4'HARD TO ACCEPT ME'
IME LIGHT OR X-DUTY'/
ATCL 1'YES' 2'NO'/
ATCL1 1'KNOW ANY.,TAKE ADV.'
AKE ME SERIOUSLY'
REJUDICE-OVERSEAS' 4'NOT USE TO WOMEN' 5'LESS RESP&PROVE ME'/
ITH 1'WOMAN' 2'MAN' 3'DOES NOT MATTER'/
EC 1'YES' 2'NO' 3'DOES NOT MATTER'/
PROB 1'CONTRACT LOOK BAD'
ENIED A BILLET'
REATED WOMEN-PROF'  4'NO SEABEE BILLETS'
AKE ME SERIOUSLY' 6'PROVE MYSELF' 7'FIELD EXPERIENCE'
ABY,FAMILY,CAREER'/
ICE 1'FIELD EXPERIENCE' 2'PROVE YOURSELF'
ELAT. PROFESS.'
IGHT FOR SEABEES' 6'NOT KNOW-ASK'
EEP HUMOR'  8'GO FOR IT'/
ICY 1'SEABEES' 2'UNIFORMS'
UPPORT NETWORK'
ATERNITY POLICY'
ETAIL-POLICY MARRD'6'MORE WOMEN KEY'
ATCH BILLETS '
INE-ATTITUDES'/
Y 0'NO' 1'YES'/
ABLE LABELS NO 'NUMBER OF QUESTIONAIRE'/ GRADE'GRADE'/
EC'NUMBER OF YEARS IN CEC'/AGE'AGE'/BSDEGR'BACHELOR DEGREE'/
TER'MASTER DEGREE'/REGIS'REGISTRATION'/MARITA'MARITAL STATUS'/
OCC'HUSBAND OCCUPATION'/CHILD'NUMBER OF CHILDREN'/AGE1'AGE OF FIRST CHILD'/
2'AGE OF SECOND CHILD'/CHILDCEC'HAVE CHILDREN WHILE IN THE CEC?'/
MAT'WHAT DO YOU THINK OF MATERNITY POLICY?'/FAMBRO 'NUMBER OF BROTHERS'/
SIS'NUMBER OF SISTERS'/MOMOCC'MOTHER OCCUPATION'/POPOCC'FATHER OCCUPATION'/
CON'FAMILY MEMBERS IN THE CONSTRUCT INDUST?'/
CON1 'FAMILY MEMBER IN CONSTRUCT INDUST'/FAMCON2'INFLUENCE YOU-CONST'/
NAV 'FAMILY MEMBERS IN THE NAVY?'/
NAV1'FAMILY MEMBER IN NAVY'/FAMNAV2'INFLUENCE YOU TO ENTER NAVY?'/
OSE'REASONS FOR CHOOSING CONSTR INDUSTRY'/
EC'HOW YOU FOUND OUT ABOUT CEC'/HARDER'COMPELLED TO WORK HARDER'/
SURE'WORK HARDER THAN MALE COUNTERPARTS'/
HARR'EXPERIENCED SEXUAL HARRASSMENT'/
ATCO'TREATED DIFFERENTLY BY CO-WORKERS'/
ATCO1'HOW CO-WORKERS TREAT ME DIFFERENTLY'/
ATSU'TREATED DIFFERENTLY BY SUPERVISOR'/
ATSU1'HOW SUPERVISORS TREAT ME DIFFERENTLY'/
ATCL'TREATED DIFFERENTLY BY YOUR CLIENTS'/
ATCL1'HOW CLIENTS TREAT ME DIFFERENTLY'/
GCON'TIME IN CONSTRUCTION INDUSTRY'/
GNAV'TIME THAT I WILL SPEND IN NAVY'/
ITH'PREFER AS A SUPERVISOR'/
EC'PREFER MORE WOMEN IN CEC'/
PROB'MAJOR PROBLEMS ENCOUNTERED ON THE JOB'/
ICE'ADVICE GIVEN A YOUNG WOMAN'/
ICY'CHANGES IN NAVY POLICY'/
Y 'COPY OF QUESTIONAIRE'/
ING VALUES NAVMAT TO COPY (9)
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T FORMATS YRCEC(F2.1),AGE1(F2.1),AGE2(F2.1),AGE(F2.0),LONGCON(F2.0)
JTE AGE1 = AGE1/10
JTE YRCEC = YRCEC/10
JTE AGE2 = AGE2/10
)E MARITA (0=2)
)E BSDEGR (6=7)
)E HUSOCC (7=6)
AR CORR GRADE WITH ALL
)N 5
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FROM QUESTIONNAIRE

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60 27 51 0 1 1 22608 1 5 31 11 142 200 1 5 1 2 4 20 20 11 08 20 3 3 1 1 0 0
36 25 10 1 2 0 00000 2 3 10 12 200 120 2 1 2 2 2 15 20 12 06 06 2 3 2 2 2 0
10 23 20 1 2 0 00000 3 6 30 11 162 200 3 4 4 4 2 11 20 13 99 08 3 3 5 3 1 1
50 26 10 2 1 2 00000 2 5 21 21 142 200 4 1 4 4 2 17 20 12 25 00 3 3 0 1 1 1
10 25 30 0 2 0 00000 3 2 40 30 200 141 4 5 3 3 4 20 20 20 02 99 3 3 0 6 0 0
20 25 10 1 2 0 00000 3 6 31 11 200 200 2 4 1 1 3 14 20 20 30 20 3 1 4 5 1 1
28 31 40 1 2 0 00000 3 6 11 21 200 200 0 1 1 1 3 15 20 14 05 04 2 2 5 6 3 0
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23 24 40 1 1 4 00000 3 5 11 12 162 200 6 1 2 2 3 18 20 11 05 05 3 3 6 6 4 1
30 24 10 1 1 1 00000 1 2 40 14 121 121 9 3 1 2 3 20 20 15 15 04 3 3 9 9 9 0
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10 22 60 1 1 5 00000 2 5 10 45 200 200 7 4 4 4 4 14 20 12 04 04 3 3 0 3 1 1
20 24 30 1 2 0 00000 2 6 02 16 200 200 3 5 1 1 3 14 12 15 07 06 3 3 5 3 1 0
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70 29 11 1 1 1 23009 1 3 23 24 121 121 5 3 1 1 2 18 13 15 20 10 3 3 6 8 1 1
90 31 11 2 1 2 00000 3 4 11 52 122 200 3 6 2 2 2 11 14 14 20 20 3 1 5 3 1 1
30 24 90 1 2 0 00000 3 6 12 17 200 121 7 5 4 4 3 20 15 20 20 99 3 3 0 8 1 1
50 27 83 0 1 1 11400 1 2 41 11 200 200 1 5 2 4 2 14 12 12 20 10 2 1 8 3 1 1
40 25 20 1 1 4 00000 2 2 12 32 200 200 7 5 3 2 3 20 20 20 01 01 3 1 0 6 1 1
16 27 11 1 1 1 00000 1 4 31 31 200 200 5 1 1 1 2 18 20 20 30 20 3 3 1 6 1 1
26 30 14 1 1 6 00000 3 2 22 26 200 200 0 1 4 4 3 11 11 20 20 04 3 1 0 3 6 1
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10 26 85 0 2 0 00000 3 6 11 16 200 200 7 1 1 2 4 20 20 20 04 04 3 3 0 9 7 0
10 30 56 0 1 6 19000 2 6 10 10 200 200 4 4 4 4 1 14 14 20 30 04 3 3 8 6 1 0
10 23 70 1 2 0 00000 2 6 20 25 121 200 1 5 2 3 4 20 20 11 05 05 2 3 7 8 0 1
10 22 30 1 2 0 00000 2 2 10 11 200 200 7 5 1 1 3 14 15 20 04 05 3 3 5 8 0 1
20 23 20 1 1 1 10500 1 3 13 23 200 132 7 6 2 4 3 14 13 20 99 04 3 3 3 8 1 1
20 23 30 1 1 1 00000 3 2 10 12 121 200 7 5 4 4 3 14 14 14 02 05 3 3 7 3 1 1
26 24 40 1 2 0 00000 3 6 32 31 200 200 6 1 1 1 2 11 14 11 04 06 3 3 0 8 1 1
30 25 90 0 2 0 00000 3 6 11 11 200 200 4 1 4 4 4 20 20 11 05 10 3 3 7 1 1 1
20 27 70 1 1 1 10600 3 3 10 12 200 200 3 1 2 1 3 15 20 20 01 01 3 3 0 0 8 1
30 29 20 1 1 2 00000 3 4 03 36 121 200 5 3 2 2 4 18 20 12 20 99 3 3 7 8 4 1
60 27 41 1 2 0 00000 3 2 01 11 200 200 3 6 2 2 3414 20 13 05 03 3 3 2 2 1 0
10 22 20 1 2 0 00000 3 2 13 11 200 200 7 5 4 4 3 14 20 12 20 10 3 3 6 2 0 0
20 23 10 1 2 0 00000 2 3 20 15 200 152 2 3 2 3 3 11 20 20 35 20 3 1 3 2 1 1
10 22 10 1 1 1 00000 3 2 01 36 200 200 5 1 1 2 3 20 20 11 08 06 3 3 5 2 1 0
90 33 11 1 2 0 00000 3 2 10 17 142 121 5 3 4 1 2 11 13 20 25 20 3 3 6 8 7 0
10 23 20 1 1 1 00000 2 6 01 97 200 121 7 5 2 2 4 20 20 14 99 04 3 3 0 8 1 1
40 26 70 1 1 2 00000 2 6 30 12 200 200 5 1 2 2 2 18 13 20 10 06 3 3 5 1 1 1
46 35 56 2 0 0 00000 2 3 21 12 200 141 9 3 2 1 1 19 19 11 30 05 3 3 5 1 0 0
40 25 37 1 1 1 00000 3 6 10 11 200 142 4 5 2 3 3 20 20 20 20 99 2 3 0 3 1 1
20 23 90 1 1 1 00000 3 4 01 25 200 200 1 5 2 2 3 20 13 20 05 99 3 3 7 6 0 0
40 25 20 1 1 1 00000 2 1 02 36 200 200 5 4 3 3 3 20 20 15 15 30 3 3 1 3 1 0
10 28 70 1 2 0 00000 2 6 11 11 200 200 5 1 1 1 4 17 20 14 20 05 3 1 6 8 1 0
60 28 20 1 1 4 23620 3 5 30 36 200 200 7 4 2 2 2 11 15 14 20 20 3 1 6 8 4 1
30 23 10 1 1 2 00000 3 2 34 53 121 131 2 4 3 4 3 20 20 20 30 20 3 1 3 2 1 1
30 25 30 1 2 0 00000 3 3 21 10 200 200 7 4 2 3 3 14 20 14 30 07 3 3 0 2 1 1
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90	32	87	2	2	0	00000	3	6	10	27	200	121	5	1	2	3	3	20	20	20	20	20	2	3	7	8	1	0
40	31	70	0	2	0	00000	2	2	51	13	121	132	7	1	3	3	3	18	20	12	04	04	3	3	9	9	9	1
30	24	20	1	1	2	00000	2	5	13	31	200	200	5	2	2	2	3	14	20	20	06	06	2	3	6	8	8	0
30	25	88	0	1	7	00000	2	6	21	26	200	200	7	6	3	3	3	14	20	12	08	04	3	1	1	8	6	1
20	24	10	0	2	0	00000	3	6	00	51	200	200	5	1	4	4	4	20	20	20	20	20	3	3	0	1	0	0
70	31	50	0	1	1	00000	1	5	10	11	200	200	5	1	1	1	2	11	20	20	25	20	2	3	3	8	4	1
10	27	10	0	1	6	00000	1	2	43	93	121	200	5	2	2	3	4	20	20	20	05	10	3	3	5	8	1	1
29	22	29	1	2	0	00000	2	6	10	42	162	200	4	1	2	2	4	20	20	11	20	20	2	3	0	2	1	1
46	26	20	1	1	1	00000	3	2	10	39	142	200	5	6	2	3	4	20	20	20	06	06	3	3	0	8	5	0
36	26	70	1	2	0	00000	2	6	00	36	200	200	8	1	4	2	2	15	20	20	07	07	3	1	7	2	1	1
70	31	11	1	2	0	00000	3	6	01	31	200	200	5	6	3	4	2	11	20	20	40	20	3	1	5	1	1	1
46	29	90	1	1	3	22609	1	2	21	21	200	131	7	1	3	3	4	20	20	20	04	04	3	1	0	8	0	0
20	23	30	1	2	0	00000	3	6	41	21	200	200	7	5	2	3	2	15	14	15	07	03	3	3	0	8	1	1
40	25	73	1	2	0	00000	2	4	32	21	200	200	4	4	2	2	3	14	20	15	04	04	3	3	0	3	1	1
99	40	59	3	2	0	00000	3	5	20	12	200	200	5	4	4	4	4	20	20	20	30	20	3	1	4	0	1	1
10	22	10	1	2	0	00000	2	6	11	22	200	200	5	1	2	2	2	20	20	20	99	04	3	3	3	8	1	1
30	29	10	1	2	0	00000	2	5	13	36	200	200	5	4	2	2	3	14	11	15	30	15	3	3	0	1	1	0
30	25	70	1	1	1	00000	1	3	11	11	200	200	9	9	9	9	9	99	99	99	99	99	9	3	5	8	1	0
30	25	10	1	1	2	00000	1	2	42	25	141	121	7	1	2	3	3	20	20	20	10	10	3	1	0	8	4	1

APPENDIX C

Resigned Women CEC Officers:

Format: Name of officers; source; information

1. Frierhoffer; Mr. Gary Mackey (GS-14) LANTNAVFACENGCOM , he supervised Mrs. (?) Frierhoffer at the ROICC office Sewells Point, Norfolk, VA; she had 1 or 2 children while in the CEC, no maternity uniforms were available so she had to wear civilian clothes, probably resigned because the military and family was too hard to balance

2. Meyer - no information

3. Tienney - no information

4. Debby Champagne; LCDR Moore, Accessions Officer;Married so resigned, works at NAVFAC as an engineer or architect

5. Foley; LT Jennifer Mustain; heard she might still be in the reserves up in the Seattle Area

6. Carla Angelo; Lt Connie Madden; she was a single mother with a young son, last I saw her was winter 1981

7. Davidson - wrote an letter to the editor of the *Navy Civil Engineer* magazine and a copy of the letter is attached

8. Mary Kappas; LT Lily-Ann Openshaw;CEC was inflexible to what her goals were, she is pursuing her Master's degee at Scripps Institute and will probably continue on to get her Doctorate in geophysics

9. Marcottee; LCDR Moore; resigned Dec 1985

10. Diane Vesely; recieved a letter from her; too hard to mix family and the CEC, resigned Jan 1986

11. Sharon Smith; LT Jennifer Mustain; married and decided to practise architecture which the CEC does not really allow, resigned Aug 1985

12. Desautels; LCDR Moore; resigned July 1985

13. Hessler; LCDR Moore; resigned November 1985

14. Schwartz-McGady; LCDR Moore; resign May 1986, performance problems

15. Lily-Ann Openshaw; herself; variety of reasons: flexibility, pay, I want to specialize in environmental/sanitary engineering, too limited, no flexibility with work scheldule to balance family time

16. Palacino (Greenbaun-maiden name); no information

17. Barbara Westhaus; herself; resigned from the Navy in Oct 1980, had two children, stayed active in the reserves, went back into the Navy in May 1984

18. Terry Riggs; no information

19. Freemeyer; the questionnaire; received a questionnaire from her that indicated she was pursuing her master's degree in education along with her husband who is a civilian, trying to be detailed with her husband did not work.

gies are hereby recorded to ENS Sheila Hixenbaugh and ENS Penny Newcomb.

Around here (editorial offices are located in the Naval School), everyone is referred to as "engineers." I, as the editor, never hear the distinction made between architects and engineers, or even between different types of engineers. Thanks for writing, LCDR Schneider. We're going to try harder! (It would be interesting to hear from some of you architects on this subject. How about it ENS's Hixenbaugh and Newcomb?)

Reader praises Buffalo's article on coastal engineering

It's been years since Harold Welsh and I communicated concerning some articles I had written for the *Navy Civil Engineer.* But the article in the Spring 1983 issue on "Wave Action" by John Buffalo prompts me to write to you to compliment you and the author on selecting and producing an informative and easy-reading technical article.

While on active duty, but more particularly since I retired a few years back, I have been involved with Coastal Engineering. There have been great strides made in understanding the forces of nature at work along our beaches, and Mr. Buffalo has encapsulated these newest theories well. One important force he did not include is the dramatic increase in sea level that is being recorded - up to three inches in ten years. On a sloping beach, that apparently small rise reduces the shoreline by many feet.

A very good book on the general subject is *The Beaches Are Moving* by Kaufman and Pilkey. After reading of the Seabees heroic efforts at Seal Beach in our magazine, I was reminded of one of my favorite quotes from the book. "If anyone were taking bets on whether man or the sea will win the struggle of the beaches, we would bet heavily on the sea."

Jack Moger
CAPT, CEC, USN (Ret)

Your letter made two people extremely happy - Mr. Buffalo and me. It's reassuring to know that someone with your expertise in the field of coastal engineering agrees with our selection of material.

A pioneer speaks her mind about women in the CEC

I read with interest your article on women in the Civil Engineer Corps; however, having been one of those pioneers myself, I feel compelled to correct some factual errors in the article.

Contrary to your article, it would not take an act of Congress to allow women to serve in Naval Mobile Construction Battalions (NMCBs). While the law does prohibit women serving more than 180 days aboard combatant ships and aircraft, there is no law which specifically prohibits women from serving in the Seabees, nor does the law prohibit women from serving in a war zone, as is popularly thought. It is merely a Navy *policy* that women not be assigned to NMCBs, and if the CEC really wanted women in NMCBs, the policy would be changed.

As more women enter the CEC, the limitations on their choice of duty (i.e., no Seabees) will begin to restrict their chances for promotion, and, in some cases, their ability to perform their assigned jobs. In lieu of real Seabee duty, women are assigned to staff Seabee jobs (i.e., COMCBLANT or COMCBPAC). In peacetime, it is merely poor management to assign someone to a staff job where (s)he makes decisions affecting Seabees, without the benefit of prior Seabee experience. In wartime, this short-sightedness could be fatal.

While on active duty, I heard on sorts of ridiculous arguments about why women couldn't be in the Seabees, everything from "we'd need separate toilets" to "women can't lead men." Balderdash. As to the first argument, Seabees more than anyone ought to be able to construct toilet facilities for women, and as to the second, the women I've known who've had opportunities to lead Seabees have never had a problem. Some women can't lead men, I'm sure, but then I know a lot of men who can't lead men, either. Leadership is not sex dependent.

I was happy to read that the women in the article felt that there is less discrimination in the Navy than in the civilian world, and that they are enjoying their CEC careers. I enjoyed my three years on active duty and wouldn't trade it for anything, but high among my reasons for leaving was the discriminating policy towards women in the Seabees. More than that, it was the attitude among so many peers and superiors that women didn't really have a place in the CEC. I've found the business world to have problems, too, but my male peers and superiors are a quantum level more supportive and accepting of women. I'm sorry to say that, because the armed forces above all should be an equal opportunity employer. In wartime, bullets don't discriminate.

I wish these young women well, for they are in for a great experience, but they should know that they are going to have to fight a peacetime war to get the same opportunities in the CEC that the men have already. It's worth fighting for, however, for it will be a much better CEC when everyone's abilities can be drawn upon fully.

Mary A. Davidson
LT, CEC, USNR-R
University of Pennsylvania

Thank you for your letter and for your viewpoint. Perhaps it will inspire other readers to respond to this column on the very same subject. We'll print anything that is reasonable.

WOMEN IN THE CIVIL ENGINEERS CORPS AND SEABEES

[redacted] Rigoulot
(out) Friehoffer
(out) Meyer
[illegible] Tierney

Champagne (out)
Foley (out)
Ingram
Jones
Lynn

angelo
Kappus (mit)
White (Pendleton)

New
Davidson
Haggeheisler

	03	02	01	TOTAL
OFFICER	4	5	3	12

	E5	E4	E3	E2	E1	TOTAL
ENLISTED						
BU	2	2	2	1	0	7
CE	0	0	0	0	0	0
CM	0	0	1	1	0	2
EA	0	2	1	1	0	4
EO	0	1	1	0	3	5
SW	0	0	0	1	0	1
UT	1	0	1	1	0	3
"A" SCHOOL	0	0	1	8	15	24
TOTAL	3	5	7	13	18	46

APPENDIX D

Other Topics Considered:

Prior to settling on the topic of "Women in the Civil Engineer Corps (CEC)," two other topics were explored. The first topic was "Women Contractors", a topic that needs research information because of the increasing number of women contractors. To obtain information about women contractors, two organizations were contacted: the Associated General Contractors, Seattle Chapter and the Association of Women Contractors. The organizations initially responded with interest, but the information needed proved to be more than the organizations cared to provide. Another way to obtain information is by researching existing literature on a topic. A computerized literary search was conducted through the University of Washington's Engineering Library which accesses all available engineering, science, and technology abstracts. This search uncovered only a small number of sources concerning women in construction or more specifically, women contractors. Consideration was given to conducting a survey but the names and addresses for a significant number of women contractors could not be located. Interviews with women contractors were also considered but it was felt only a small sample could be obtained. Unable to identify a viable means of obtaining meaningful information, the research effort on the topic of "Women Contractors" was discontinued.

The second topic explored was "Women in the Building Trades." A initial contact with an AFL-CIO representative indicaated that this might prove to be a fertile area for obtaining information . This representative was interested and

offered to provide a listing of names and addresses of approximately 4,0000 women so that a survey could be conducted. A questionnaire was prepared and sent to this AFL-CIO representative in Seattle for his review. Since no response was received and since time was limited, the research effort on this topic was also discontinued.

The research effort on the first two topics was discontinued due to the inability to find a viable means of collecting information; therefore the search for another source of information was initiated. While searching for a information source, a listing of the names and addresses for women in the Civil Engineer Corps was found to be available. With this listing a survey could be conducted that would generate information. Because women CEC officers do construction work, the results of the survey would be related to other women employed in the construction industry. The author became expressly interested and decided to pursue the topic for research. The CEC detailers, who are responsible for all personnel actions in the CEC, were contacted and they supported the topic selection. Therefore the topic selected for research became "Women in the Civil Engineer Corps".

APPENDIX E

DEPARTMENT OF THE NAVY
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
WASHINGTON, DC 20350

IN REPLY REFER TO
Ser 446/4U383332
9 March 1984

Dear Petty Officer Robli,

The Assistant Secretary of the Navy has asked me to reply to your letter of January 30, 1984 concerning the assignment of women to Naval Mobile Construction Battalions.

Naval Mobile Construction Battalions are mobile, combat trained and equipped units of the Naval operating forces which must be ready for immediate deployment into hostile areas in support of the Marine Amphibious Force or other combat assignments. Women are assigned to ships under authorization of Title 10 United States Code, Section 6015. This law authorizes the temporary assignment of women to ships or squadrons that are not expected to have a combat mission during the period of assignment. The same law precludes the permanent assignment of women to combatants. Naval Mobile Construction Battalions are the same as combatants since at all times they must be ready to immediately deploy to a combat zone. Each person in the battalion is key to the combat mission and if some members of the unit were precluded by law from deploying to the combat zone it would be inconsistent with their required readiness posture.

Women are serving the Navy extremely well in all occupational fields, including the Seabee ratings. They are not taking shore duty appointments away from men, but working along with their male counterparts in building and maintaing a strong Navy. Even at mobilization there are many combat support roles that must be performed outside the combat zone itself.

Your concern and desire to be a full participant in serving your country are well appreciated.

Sincerely,

T. J. HUGHES
Vice Admiral, U. S. Navy
Deputy Chief of Naval
Operations (Logistics)

CM2 A. J. Robli, USNR
5810 Heatherbrook
Houston, Texas 77085

lind Copy to:
P-09B34 (4U001729)

WOMEN IN THE NAVAL

CONSTRUCTION

FORCE

- NAVY AND MARINE CORPS POLICY
- NAVY WOMEN GOAL
- CURRENT WOMEN INVENTORY
- ADVANTAGES/DISADVANTAGES OF ASSIGNMENT TO NCF
- METHOD OF IMPLEMENTATION AND CANDIDATE BATTALION
- POA&M
- COMCBLANT, COMCBPAC, COM20NCR, COM31NCR, AND OP-44 INPUT
- MAXIMUM WOMEN ENLISTED ON ACTIVE DUTY
- RECRUITING PROFILE
- POLICY DECISIONS REQUESTED

PARA 3. IT IS THE POLICY OF THE DEPARTMENT OF THE NAVY THAT WOMEN MEMBERS, OFFICERS AND ENLISTED, WILL BE ASSIGNED TO BILLETS COMMENSURATE WITH THEIR CAPABILITIES TO THE MAXIMUM EXTENT PRACTICABLE. ACCORDINGLY, WITH RESPECT TO DUTY ON SHIPS AND AIRCRAFT, WOMEN:

D. MAY BE ASSIGNED IN REAR ECHELON BILLETS FOR COMBAT SERVICE SUPPORT FUNCTIONS THAT WOULD NOT REQUIRE THEM TO DEPLOY WITH THE ASSAULT ECHELON OF THE COMMAND SHOULD A CONTINGENCY ARISE

E. WILL NOT BE ASSIGNED TO COMBAT DUTY OR, IF ASSIGNED TEMPORARY DUTY ON A VESSEL THAT IS ASSIGNED A COMBAT MISSION, EVERY REASONABLE EFFORT WILL BE MADE TO DISEMBARK THEM PRIOR TO EXECUTION OF SUCH MISSION. FOR THIS PURPOSE, A "COMBAT MISSION" IS DEFINED AS ONE THAT HAS ONE OF ITS PRIMARY OBJECTIVES TO SEEK OUT, RECONNOITER, OR ENGAGE THE ENEMY. THE NORMAL DEFENSIVE POSTURE OF ALL OPERATING UNITS IS NOT INCLUDED WITHIN THIS DEFINITION.

MARINE CORPS UNITS AUTHORIZED FOR PERMANENT ASSIGNMENT OF WOMEN

FLEET MARINE FORCE UNITS

DIVISIONS

AIRCRAFT WINGS

FORCE SERVICE SUPPORT GROUP HEADQUARTERS STAFFS AND SUBORDINATE NON-DEPLOYABLE (REAR ECHELON) UNITS PROVIDING SERVICE SUPPORT, AVIATION SUPPORT OR COMMUNICATIONS SUPPORT.

RESTRICTIONS ON THE ASSIGNMENT OF WOMEN MARINES

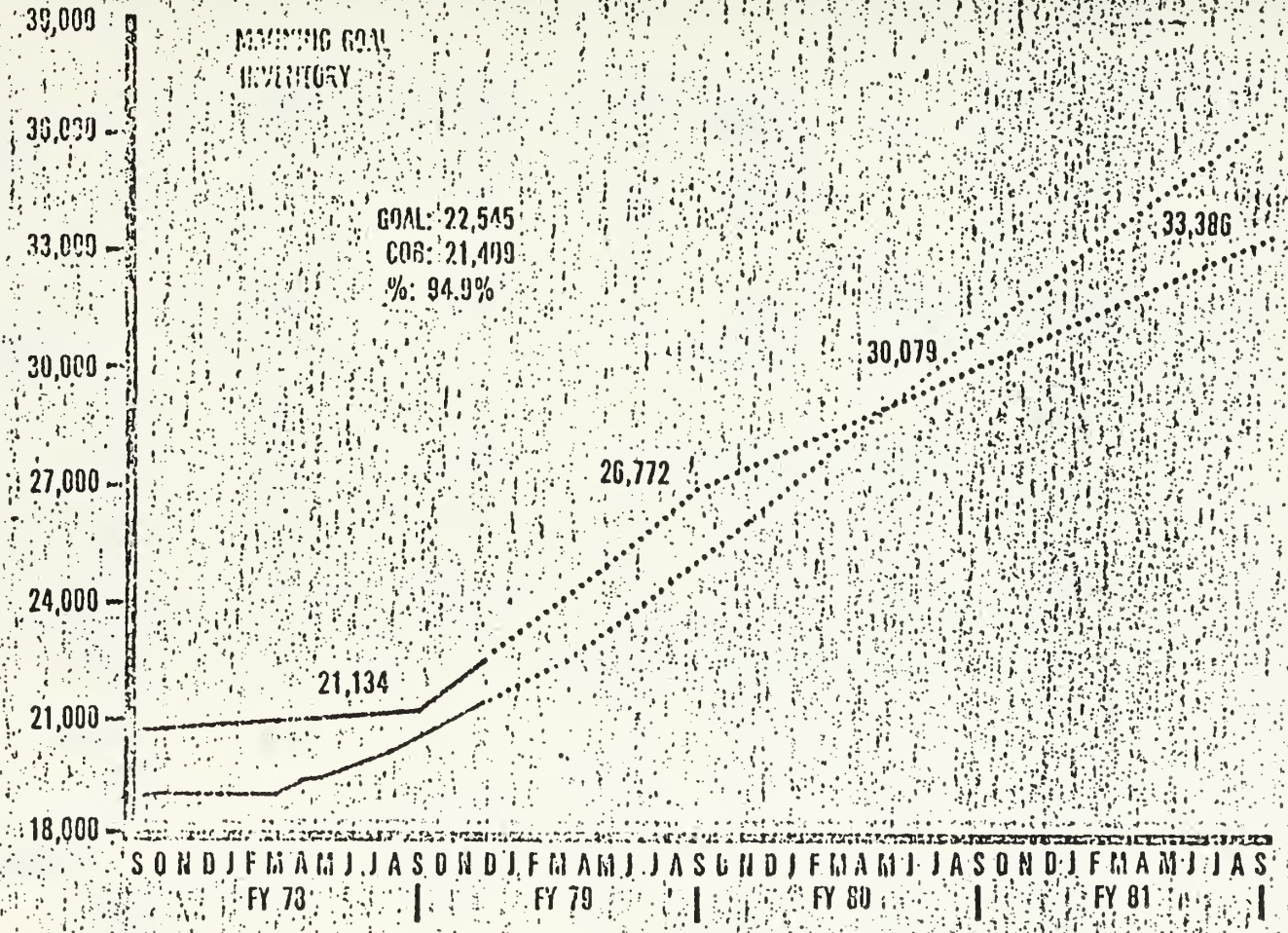
1. FMF ASSIGNMENTS. IT IS MARINE CORPS POLICY THAT WOMEN WILL NOT BE ASSIGNED TO MOS's IN OCCUPATIONAL FIELDS 03 (INFANTRY), 08 (ARTILLERY), 18 (TANK AND ASSAULT AMPHIBIAN VEHICLE) AND 75 (PILOT/NAVAL FLIGHT OFFICER). SPECIFIC POLICY ON THE ASSIGNMENT OF WOMEN MARINES WITHIN THE FMF FOLLOWS:

o WOMEN MAY BE ASSIGNED TO COMBAT SUPPORT AND COMBAT SERVICE SUPPORT UNITS AS LONG AS SUCH AN ASSIGNMENT WILL NOT ROUTINELY EXPOSE THEM TO COMBAT ACTION AS CONTEMPLATED IN SUBPARAGRAPH 1A ABOVE. WOMEN MARINES COULD THEREFORE BE EMPLOYED IN THE GENERAL PROXIMITY OF DIVISION HEADQUARTERS BUT SHOULD NOT BE ASSIGNED TO SUPPORT UNITS/ELEMENTS THAT WILL MANEUVER WITH THE INFANTRY REGIMENT OR SUBORDINATE UNITS, OR BE COLLOCATED WITH THE INFANTRY REGIMENTS IN FORTIFIED POSITIONS

MARINE CORPS DEFINITION OF COMBAT ACTION

UNITS WHICH, IN THE EXECUTION OF THEIR PRIMARY MISSION, WILL CLOSE WITH AND DESTROY THE ENEMY BY FIRE OR REPEL THE ASSUALT BY FIRE AND CLOSE COMBAT.

ENLISTED WOMEN GOALS/INVENTORY



WOMEN IN THE CIVIL ENGINEERS CORPS AND SEABEES

	03	02	01	TOTAL
OFFICER	4	5	3	12

	E5	E4	E3	E2	E1	TOTAL
ENLISTED						
BU	2	2	2	1	0	7
CE	0	0	0	0	0	0
CM	0	0	1	1	0	2
EA	0	2	1	1	0	4
EO	0	1	1	0	3	5
SW	0	0	0	1	0	1
UT	1	0	1	1	0	3
"A" SCHOOL	0	0	1	8	15	24
TOTAL	3	5	7	13	18	46

POSITIVE FACTORS IN ASSIGNMENT OF WOMEN TO NCF

1. MAKES CHIEF OF CIVIL ENGINEERS AN INNOVATOR IN EQUAL OPPORTUNITY AND BRINGS SEABEE WOMEN POLICY IN LINE WITH REST OF NAVY.

2. QUALITY OF LINE OFFICERS ASSIGNED SHOULD IMPROVE.

3. QUANTITY AND QUALITY OF NON SEABEE RATES SHOULD IMPROVE, FILLING CURRENT VACANCIES, PARTICULARLY IN THE CLERICAL AREA.

4. OPENS CAREER PATH FOR BOTH FEMALE OFFICERS AND ENLISTED

5. IMPROVES EQUAL OPPORTUNITY IMAGE OF CEC/SEABEES

6. NEGLIGIBLE EFFECT ON CONSTRUCTION CAPABILITY OF NCF

NEGATIVE FACTORS IN ASSIGNMENT OF WOMEN TO NCF

1. POSSIBLE NEGATIVE MORALE AND LEADERSHIP PROBLEMS IN NMCB's.
2. MODIFICATIONS WILL BE REQUIRED TO SEABEE CAMPS.
3. MODIFICATIONS WILL BE REQUIRED TO TACTICAL INFANTRY TRAINING FOR PERSONNEL ENROUTE TO NMCB'S
4. SENSITIVITY TRAINING WILL BE REQUIRED INITIALLY FOR NMCB's WHEN THEY FIRST RECEIVE WOMEN.
5. INFORMATION PROGRAM FOR WIVES OF NMCB's MEMBERS WILL BE REQUIRED.
6. UNIFORM AND EQUIPMENT MODIFICATIONS MAY BE REQUIRED, I.E. STEEL TOED BOOTS ETC.
7. DEPLOYMENT OF WOMEN TO CONTINGENCY AREAS WILL HAVE TO BE ASSESSED.
8. LACK OF SENIOR WOMEN SEABEE PETTY OFFICERS.
9. CAMP EXCHANGE AND MEDICAL WILL REQUIRE OUTFITTING WITH ITEMS FOR WOMEN.
10. FIELD EXERCISE MODIFICATIONS REQUIRED

MILESTONES

JUN 79	BRIEF DEPUTY CHIEF OF CIVIL ENGINEERS, 06, 09M
JUN/JUL 79	BRIEF OP-44, COMCBLANT, COMCBPAC, COM31NCR, AND COM20NCR
JUL 79	BRIEF/DECISION CHIEF OF CIVIL ENGINEERS SELECT NMCB FOR FIRST WOMEN
JUL 79	NOTIFY COMCBLANT/COMCBPAC OF DECISION AND TASK PLANNING
AUG 79	FORMAL REQUEST FOR APPROVAL FROM CNO
SEP 79	APPROVAL BY CNO
SEP 79	DIRECT MODIFICATION OF SEABEE CAMPS, PROCUREMENT OF SPECIAL ITEMS/EQUIPMENT WITH POA&M
SEP 79	DIRECT TRAINING SCHEDULE FOR NMCB FOR SENSITIVITY TRAINING PREPARATION OF REGIMENTAL COURSE, AND WIVE'S PROGRAM WITH POA&M.
SEP 79	PUBLICIZE AVAILABILITY OF BATTALION DUTY FOR WOMEN AND SOLICIT VOLUNTEERS (ONE TIME, AFTERWARD NON VOLUNTEERS WILL BE ASSIGNED)
NOV 79	REVIEW TRAINING, PROCUREMENT, AND CAMP MODIFICATION PLANS
NOV/DEC 79	SELECT OFFICER AND ENLISTED PERSONNEL FOR BATTALION
DEC/JAN 79	ISSUE ORDERS TO FEMALES

FEB 80	COMPLETION OF TRAINING PROGRAM AND SCHEDULING FOR NMCB
MAR 80	PROCUREMENT OF UNIFORMS/EQUIPMENT FOR WOMEN
APR 80	TRAINING FOR NMCB
APR 80	OFFICERS REPORT TO NMCB FOUR IN GUAM
MAY/JUN 80	OFFICERS REPORT TO CECOS FOR SEABEE OPERATIONS COURSE
15MAY 80	NMCB FOUR RETURNS TO HOMEPORT
JUN 80	ENLISTED WOMEN REPORT TO REGIMENT FOR INDOCTRINATION
15JUN 80	ENLISTED WOMEN REPORT TO NMCB
SEP 80	MODIFICATIONS TO SEABEE CAMP COMPLETE
15NOV 80	NMCB FOUR DEPLOYS
81	ASSIGNMENT OF WOMEN TO OTHER NMCB'S.

COMCBLANT, COMCBPAC, COM2ONCR, COM3INCR, & OP-44 COMMENTS

1. GENERAL CONCURRENCE WITH POA&M
2. CONCERN OVER ADEQUATE BERTHING IN HOMEPORTS
3. CONCERN OVER INFORMATION PROGRAM FOR WIVES
4. NO UNIFORM OR EQUIPMENT PROBLEMS FORESEEN
5. REPLY ON DOD WOMEN POLICY FOR DEPLOYMENT WITH WOMEN, I. E., NO SPECIAL POLICY FOR DETACHING WOMEN
6. CONCERN OVER DIEGO GARCIA ASSIGNMENT
7. RECOMMENDATION OF NMCB 133 FOR FIRST WOMEN (COMCBPAC)
8. PROCEED WITH SLOW DELIBERATE PROGRAMS

WOMEN BY RATING

	MAX	MIN
BM	1	0
MA	0	0
GM	0	0
ET	1	0
YN	3	1
PN	2	1
SK	2	1
DK	1	0
MS	3	1
SH	1	0
RP	0	0
JO	1	0
PC	1	0
MR	0	0
HT	1	0
CU	0	0
EA	2	0
CE	4	1
EQ	0	0
EO	8	1
BU	15	1
SW	4	1
UT	4	1
HM	1	1
DT	1	0
	57	10

10% OF 562

WOMEN BY DESIGNATOR

	MAX	MIN	
CEC (510x)	2	1	
LINE (110x)	1	0	
SUPPLY (310x)	1	0	1*
DENTAL (220x)	1	0	
	5	2	

*MUST BE ONE FEMALE OFFICER FROM ONE OF THREE COMMUNITIES.

MAXIMUM NUMBER OF WOMEN ENLISTED

RATING	NCF 10% FMF RULE			OTHER SEA DUTY		
	PO(E5-E8)	NONRATE	TOTAL	PO(E5-E8)	NONRATE	TOTAL
BU	55	72	127	26	14	40
CE	18	24	42	39	14	53
CM	24	30	54	17	12	29
EA	6	7	13	5	2	7
EO	33	47	80	18	18	36
SW	15	24	39	7	5	12
UT	15	22	37	26	16	42
	167	226	393	138	81	219

FIRST TERMER REQUIREMENT 307

SECOND TERMER REQUIREMENT 305

RECRUITING PROFILE FOR ENLISTED WOMEN

RATING	FY 79			FY 80			FY 81			FY 82			FY 83		
	USN	USNR	USNR-R	USN	USNR	USNR-R	USN	USNR	USNR-R	USN	USNR	USNR-R	USN	USNR	USNR-R
BU	12	0	0	12	0	0	40	5	15	40	5	15	40	5	15
CE	18	0	0	18	0	0	25	3	12	25	3	12	25	3	12
CM	15	0	0	15	0	0	20	4	12	20	4	12	20	4	12
EA	7	0	0	7	0	0	6	2	3	6	2	3	6	2	3
EO	20	0	0	20	0	0	34	4	20	34	4	20	34	4	20
SW	10	0	0	10	0	0	16	5	9	16	5	9	16	5	9
UT	15	0	0	15	0	0	25	5	8	25	5	8	25	5	8

POLICY DECISION REQUESTED

1. SHOULD WOMEN BE INTRODUCED TO THE NCF?
2. SHOULD WOMEN DEPLOY TO CONTINGENCY AREAS WITH NMCB's?
3. SHOULD WOMEN BE INTRODUCED TO THE RESERVE NCF?
4. SHOULD MARINE CORPS 10% LIMITATION BE ADOPTED?
5. WHICH NMCB SHOULD WOMEN BE ASSIGNED TO FIRST?

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